Jan.17th 1914.

Dr.Frank K.Cameron,

Washington,D.C.

My dear Dr.Cameron:

On Thursday and Friday the 8th and 9th,I was in Los Angeles,San Pedro and Longbeach looking up the kelp situation. In some ways it was a most interesting trip on account of the moves beening made by the various companies and their free expression of their future moves.

The American Potash Company is now making use of their demonstration plant and are bringing in about four tons of wet weed every other day and drying it as I described the process in my last letter to you. At present this is all that they can handle with their drying plant and so the rest of the plant only works part time. However they claim that all of their processes are working according to program and that they are getting results in accord with the analyses that were given to you when you were here. They are seemingly getting very pure salts from their runs and the partial distillator is giving the asphalt,tar and creosote. I have been unable to stay and watch an entire run so I can only speak for the results as they appear in the mill and they are there.

They are now collecting by means of pulling up the kelp and cutting it off with knives and loading it all into cargo nets that are spread out on the deck of the boat. These are brought to the landing and then raised to the small wharf by means of the a crane. Then the kelp is cut into small pieces by means of a large knife and wheeled in wheelbarrows to the drying platform. This platform I described in my last letter to you. Then it wheeled into the factory or mill and the process continued as before described with the exception that the mother liquor is drawn off into a large vat,then steam is brought in by means of hose and evaporation hurried.

This causes the K2SO4 to crystallize out on the sides of the vat, the KCl on the bottom and the NaCl is then drawn off in the mother liquor into another vat where it is crystallized out. The remaining liquor is then sent to the evaporating pans before described and the final crystallization takes place. They claim th t 80% of the crystallization takes place during the first crystallization.

They are going ahead enlarging their plant and have the following new machinery made:

8 lixiviating vats.

12 condensors.

1 Steam punch and rivetor.

1 motor.

1 Steam boiler - burns distillate.

1 large galvanized building described before,

They are still trying to find a good method for drying the kelp. They tried several tons in a rotary kiln in Los Angeles but claim that it will not work on account of caking thus leaving the kelp wet inside of the mass. They are now going to increase the size of their horizontal steam pipe drying plant by putting ina conveyor, and making it in 3 tiers, then enclosing it and using all of the heat from the boilers and mill. They believe that this will s lve their problem for them.

They are yet waiting for the money market to loosen up so that they can get enough money to carry on their developements.

They claim thatnthey have bought the concession for the Mexican kelp from Bernstein by giving to him stock in their c mpany and that he will be in charge of their collecting in the South. This concession they got for 1000 pesos or $500 gold.

I talked with the men on their boats and they say that they have not been kept in by the high seas of the last seven weeks altough the collecting has not been easy. I was rather surprised at this as the sea has been very rough. I was able to catch only Firman as Brander, Wilson and Tanner were not at the Los Angeles office when I called there. By the way, their office address is now #1205 Marsh-Stron Bldg., Los Angeles.

I also visited the Pacific Kelp Mulch Co. but found that they were not doing anything at all at their plant. They now have an up town office at #708 Towne Ave. Los Angeles. They are also trying to get ahold of money with which to go ahead and think that they will be able to get to work within a month. They are figuring on doing their work as described in my last letter to you. Bernstein is dickering with them and I saw him in their office the morning that I called on them.

I also saw Bernstein before I saw him in the P K M Co. office and had a talk with him. As I knew about the claim of the American Potash Co. I tried to draw him out as to his connection with them but he sidesteeped giving any information along that line and from the fact that I met him the next morning at the P K M Co. rather showed that he had not tied up with either but that he is trying to drive the best bargain that he can for his concession. Bernstein brought up 19 tons of dried kelp from Mexico to San Pedro but he has been unable to dispose of any of it and it is now in a warehouse at SanPedro.

I have been unable to send the usual samples of kelp lately as the se sea has been too rough and our boat has not been going out,

I believe that my appointment runs out on Feb.1st while the appropriation for visiting and investigating the kelp situation runs until July.1 What will be the status of myself and this appropriation after Feb.1st.

#4.

I received a letter from Kettner the other day in which he said that he had met you and I believe that you framed up a bill between you for the House. I hope that you were able to get together and that you can put the printing bill through. Bill thought that he sent me a copy of the bill but it has evedently gone astray.

How are matters going in general? Were you able to try the distillation process and prove or disprove the tar, creosote and varnish matter? It has been a long time since I have heard anything from your office either in the way of wants or results and I suspect that you are getting a lot of good things in store. By this time you probably have a good idea of the Alaskan situation and the probable worth of that district.

If you have any good suggestions that you want to make concerning kelp growth experiments send them on and I will see whether it will be feasible for me to carry them out as I now have a Salt Water Aquarium that is at my disposal as long as I keep the plant going. This is no easy matter with the Pacific ocean on a rampage as it is this winter.

With best regards to both you and Turp, I am

Yours sincerely,

W. C. Crandall

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

January 21, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California,
La Jolla, Cal.

Dear Crandall:

I am enclosing herewith copy of a patent gotten out by Mr. G. H. Ennis for a seaweed cutter. I would like for you to look this over at your convenience and advise me what you think about it, and if it seems wise and if you can make arrangements to see Mr. Ennis conveniently, I think it would be well for you to drop up to Los Angeles some time soon and go over it with him and then advise me.

Kelp matters are simmering here. I have seen Mr. Kettner some two or three times and he seems quite enthusiastic. A bill to publish the kelp maps and our reports has been introduced in both the Senate and the House, and I understand is now under consideration by the House Committee on Agriculture, and the impression has been given me that it stands a good chance to ultimately go through, so that some time in the future we can look to see this material published. The House Committee also has under consideration an appropriation which will probably

run two years, to enable us to put up a small demonstration plant somewhere on the coast to investigate practically the commercial possibilities of preparing and marketing the kelp. Whether this will go through, I have no means of determining at the present time, but the prospects look rather promising.

We would like to get some more green kelp, and I am wondering if it would be convenient for you some time in the near future to pack a hogshead or barrel with 100 pounds or so of the stuff and ship it on to us. One of the men here, Merz, has been carrying on some rather interesting experiments in extracting the salts from the green kelp, which we would like to follow up, but we need more and larger quantities of green material than we have had at our disposal heretofore to push this work, and apparently will have to depend upon you to get it to us, as efforts to get the Los Angeles people to quote us a price have proven abortive.

I have made one or two attempts toward social amenities with Mr. Kettner, according to your suggestions, but he has informed me that he is so very busy that he has had absolutely no time up to the present away from his office. Both Mr. and Mrs. Kettner seem to be very charming people and good friends of yours, and I shall follow up the acquaintance.

Sincerely yours,

FRANK K. CAMERON,
In Charge.

Enclosure.

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

January 23, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California, La Jolla, Cal.

Dear Crandall:

Your letter of January 17 reached me this forenoon, and I am greatly interested. Some of the claims made for the American Potash Company's products must certainly be wrong. The beautiful powers of selection displayed by calcium sulphate and calcium chloride as to where each shall crystallize fills me with amazement and incredulity. We have made no further studies on the distillation products from kelp, as we are not especially interested in them, and have confined our work for some time past almost entirely to the potash features. I am very much interested in what you say about Bernstein.

Kelp matters here are simmering just at present, pending action by Congress, but the prospects appear good for renewed activity to follow specific appropriations for our work by that body. I have been tremendously busy lately and have not had an opportunity to look up Mr. Kettner, but, as I wrote you a day or two since, I will try to have a talk with him again before long. I expect to give a lecture on

MMC\D

kelp within the next fortnight and I shall certainly see that Mr. Kettner is urged to come.

I am very much disturbed by what you tell me about the American Potash people pulling up the kelp from the bottom. This is an altogether reprehensible practice, and if you have a chance I think you ought to impress upon them that it will certainly raise objections and prejudice their interests.

We are looking forward to a possible opportunity to investigate the manufacturing side of the kelp by the installation of a small plant or laboratory on the coast next year, but I do not like to let anything get out about this as yet, because it is by no means certain that Congress will authorize it. In any event, we expect you to continue as our local agent, if such is agreeable to you, and I have just looked up the matter with the proper clerk and find that your appointment runs indefinitely.

Turp joins me in best wishes, and I hope to be able to write you before long something definite.

Sincerely yours,

Frank K. Cameron

FRANK K. CAMERON,

In Charge.

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

January 26, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California,
La Jolla, Calif.

Dear Crandall:

This is a personal letter.

The House Committee on Agriculture which is now considering the appropriation bill has before it a proposition to add an item of some twenty thousand dollars, with the understanding that the appropriation is to be repeated at least one more year, to demonstrate the practicability of harvesting and manufacturing kelp in a form to be used as a fertilizer. We have no assurance that this appropriation is going through, but at the present time it looks very promising, so promising that I have felt it necessary to give the matter very serious thought with a view to being prepared to go ahead with it very promptly on the first of July should the appropriation be made available.

After casting around in my mind the various possibilities, I have become convinced that the best one is to have you tackle the job if you are willing to do so and can afford to take it at the figure which we could arrange

MKC/D

January 26, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California,
La Jolla, Calif.

Dear Crandall:

This is a personal letter.

The House Committee on Agriculture which is now considering the appropriation bill has before it a proposition to add an item of some twenty thousand dollars, with the understanding that the appropriation is to be repeated at least one more year, to demonstrate the practicability of harvesting and manufacturing kelp in a form to be used as a fertilizer. We have no assurance that this appropriation is going through, but at the present time it looks very promising, so promising that I have felt it necessary to give the matter very serious thought with a view to being prepared to go ahead with it very promptly on the first of July should the appropriation be made available.

After casting around in my mind the various possibilities, I have become convinced that the best one is to have you tackle the job if you are willing to do so and can afford to take it at the figure which we could arrange

at this end of the line. Briefly, the idea which I have in mind in the event that you can take up the work, would be to appoint you in April or May on the permanent staff of the Bureau pending special examination which the Civil Service Commission would undoubtedly insist upon, and which would be one which you would undoubtedly pass first, inasmuch as experience in kelp investigations would naturally play so predominating a part that no one else in the country could match you. As soon as you are appointed, or shortly thereafter, to have you come to Washington to go over details of plans and specifications so as to have them all ready to send out at the earliest practicable moment, and then for you to return West, either with or without me, to make arrangements for securing the proper site at which to put up a small demonstration plant. As soon as the site is secured, we want you to go ahead and employ the necessary labor or do what will be necessary to get the plant up and in operation as quickly as possible. The chemical processes involved are extremely simple, and we would of course see that you had the proper scientific help, but would look to you to see after the practical work. The selling end of it would have to be handled from this end. In other words, we should probably not sell any of the kelp at all but dispose of it in such a way that we can get definite figures on the prices of the products, either through boards of

trade in fertilizing centers or from manufacturers of the fertilizer goods directly.

One apparent difficulty with this program is that the position is a two-year one. This however, to my mind, is no serious difficulty, because there will be a good deal of work in all probability growing out of this effort which would make your retention in the Government service permanently desirable, if you wished to stay; and on the other hand it opens up opportunities and gives a contact with practical business which unquestionably would bring you much better opportunities financially than remaining in scientific work will ever bring. In other words, there are all sorts of opportunities and possibilities opening up so that you could feel assured of the future.

I wish you would think this over and write me personally and confidentially how it would appeal to you, what salary you think you ought to receive, and also what your personal ideas are as to the best location for a demonstration plant.

Sincerely yours,

Frank K. Cameron

FRANK K. CAMERON.

THE SCRIPPS INSTITUTION FOR BIOLOGICAL RESEARCH
OF THE
UNIVERSITY OF CALIFORNIA

LOCATED AT LA JOLLA
NEAR
SAN DIEGO, CALIFORNIA

LA JOLLA, CALIFORNIA,

Jan.29th 1914.

Mr.G.H.Ennis,

American Potash Co.,

Los Angeles,Cal.

My dear Mr.Ennis:

Dr.Frank K.Cameron ,In Charge of the Kelp Investigation of the Bureau of Soils of the Dept.of Agriculture has written me regarding your recent patent for a Kelp Cutting Machine. He also asked me to see you if possible to talk over the machine with you.

If it will be convenient for you,I will come to Los Angeles the latter part of next week and have a talk with you. A week from next Sat.or Feb.7th would be a convenient day for me if you can arrange to meet me at that time. Kindly advise me if this is satisfactory and where to meet you and the time.

Yours truly

Collaborator.

Feb.2nd 1914.

DrlFrank K.Cameron,
Washington,D.C.

My dear Dr.Cameron:

Your letter of the 26th is at hand and I am at a loss as to what to say concerning the proposition that yo bpropose until I can know a little more about it. So I will ask a few questions first:

What would be the subjects that the Civil Service Commission would be apt to ask one to tackle. It has been a good while since I have done some things and I should need tondo a good deal of diggings probably in some branches.

What would be the status of the work and the appointment from May 1st to July 1st?

As regards my work here,I am in a quandry as it is very satisfactory work and in some ways is not unlike what you suggest as I am Business Manager and have very little to do with the scientific end of the work other than in an advisory manner. I have built a seawall,a bunch of cot ages and a houseo, installed a salt water system,a drainage system and run a summer and winter colony during the last 10 months and there are a number of interesting problems that are under way at present that I am mightyly interested in. Also the matter of salary is an important one and the conditions under which one must live. I am making $2500 per year and am furnished a machine for my use so that I figure that my present salary is2800. Then we are located out here where the living expenses are mighty low as compared with other places as our rent is only $13.00 for a furnished cottage etc. So if I figure it from the amount that I can live on here and in other places,I could not figure on less than $3,000. Now,as the work here is satisfactory and permanent,I would be foolish to consider a place that did not offer some advance over present conditions and so as to salary,I do not think that $3600.00 would be asking more per year than I should get.

In stating $3600.00,I am also taking into consideration the fact that in government work there is always a lot of expense that one does not get in many other jobs.

I took the matter up with Dr. Ritter this afternoon and we talked over the matter at some length. If it seemed best for me he would not stand in the way of my taking the place altho I am reaaly under contract until the first of July according to the University appointments.

As to the location of the plant,it might be possible to get a location on the government land either on Point Loma or on North Island. The great objection to these is the absence of railroad facilities. However a small boat could easily take the finished product to San Diego and thus give a place that would be near the kelp beds and in a protected place.

San Pedro would be the only other available place and as one might be able to charter the cutting barges of the companies there or at Longbeach,it might be preferable,also railroad facilities are better. For a demonstration plant,I do not believe that it would be wise to use one of the open roadsteads as Santa Barbara. Also the labor problem would be more complicated there as there are not as many sailors in that region.

Your general problem appeals to me strongly and I will await your reply with interest,

Yours truly

GEORGE H. ENNIS
WILLIAM S. ENNIS

HOME PHONE F 5482
SUNSET PHONE MAIN 3942

ENNIS BROTHERS
SUNNY SLOPE RANCHO
GENERAL OFFICE: 514-515 EXCHANGE BUILDING
LOS ANGELES

February 2, 1914.

My dear Captain Crandall:

I have your favor of the 29" ult. and would be very glad to see you on Saturday, February 7th. Will you kindly call in the morning of this date as I expect to be out of the office during the afternoon.

I note that you addressed me, "c/o of American Potash Company." I beg to state that I have nothing to do with these people at all. What I have done in the matter of kelp has been entirely independent and on my own hook.

Looking forward to seeing you Saturday morning, I am

Yours very truly

Glen H. Ennis

Captain W. C. Crandall

c/o Scripps Institution
for Biological Research

La Jolla, Calif.

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

February 10, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California,
La Jolla, Cal.

Dear Crandall:

The barrell of kelp arrived to-day at the same time with your letter announcing its shipment, and I am very much obliged to you for your prompt attention to our request. We have not opened the barrell as yet, but it seems to be in first rate shape.

Very truly yours,

FRANK K. CAMERON,

In Charge.

Feb. 12th 1914.

Dr.Frank K.Cameron,

Washington,D.C.

My dear Dr. Cameron:

Yesterday we went over the new work of the Station that will probably be done within the next few months and this work involves the expenditure of about $20 000 for another seawall that will enclose a number of tanks that will fill with the tides and give a chance for a lot of the larger animals. This would be the first one of the kind on this coast and it will be a dandy job to oversee. This together with a Summer Series of talks in lieu of a Summer School would mean another intersting piece of work. After considering all of our problems here,it seemed to both Dr.Ritter and myself that it might not be an impossible thing for me to oversee the Kelp Business and also the work of the Station at the same time if the factory were to be located in or near San Diego. This would put all of the facilities of the Station at the disposal of the work and everything would cost only the time and material used. Except when this would mean more than a small rental for a smallboat,it would be to the advantage of both parties. Then the laboratory facilities here are now such that they can be used to advantage and there would be available laborers that would already know something of the work and who have been tested out as being trustworthy. As the Station Authorities are willing that I should do the work,there would be no doubt that there would be little lost time on my part in the work In this way, also.I would have the services of Mr.Ross our engineer who is one of the best men that I know of for doing work with machinery. I am putting this to you as a possible manner that would let me do all of the things that I want to do and that I am sure I can do satisfactorily for all conserned.

Y

Effect of Storms

Feb.12th 1914.

Dr.Frank K.Cameron,

Washington D.C.

My dear Dr,Cameron:

Last Saturday the 7th,I was in Los Angeles and had some good talks with Ennis,Brander,Tanner and a short one with Wilson.

Ennis took up the matter of his kelp cutting machine and we dis cussed the various features of it. The machine differs from the one that the P.K.M.Co.used in that the vertical knives are at the forward extremities of the guides in stead of next to the horizontal knife. This would make no material change. The forward guides that are adjustable on pontonns are all right in theory but I have my doubts about their practical use. So far as the features on the boat are concerned he has not worked out experimentally the details but simply has put in his ideas of how it might be done. I know that the matter of cutting the kelp has proven a difficult one in practice but nevertheless he assumes that it is an easy one. He has no intention of immediately constSucting a cutting machine nor does he know of any one that will want to use his ideas. He said that if the Dept. wanted to use any or all of his plans,he would be most glad to cooperate in any way possible or to let you have all of his ideas to use as you saw fit. He is now working on a plan for drying but did not give me the details.

Ennis also has in mind the problem of getting the kelp and then leaching out the salts as per yo ur suggestions in your Sen.Doc. #190 and then using the kelp for food for hogs and cattle together with such concentrated foods as barley,Kaffir co rn,or corn. The salts would then be used for the fertilizers. As Ennis is in a company that owns a

buhch of cattle and hogs and also the various types of farm or ranches as truck gardens at his Laguna Ranch near Los Angeles where there is a bunch of Japs and Chinamen doing truck gardening and where he has a bunch of hogs. Then at his Sunny Slope Rancho near Riverside, he is now putting in a bunch of orange and Lemon trees and also is ranging some cattle and feeding them. He proposes that if arrangements can be made to try and see how the kelp acts on them. One of the problems involved, of course is whether even after leaching there will still be enough salts legt to cause the animals to scour. Again the quality of meat will be in doubt until he can test for six weeks or two months and then buthers and notes the differences as to fats, firmness etc. Ennis is willing to put some money into such experiments and also to use some of his stock for the experiments. As her has nearly all of the type conditions that we are interested in, he seems like a good man to keep in touch with. He is a very busy man and hard to get ahold of but as you know is always interesting. From the talks that he was having over his phone while I was there I could tell that he has the goods that we want. He has a good little reference library of agricultural books on his desk and they all show use. I can see that he has little or no use for the American Potash Co. and has no connections with them whatever, regarding them as a stock selling proposition. As you recall there were some negotiations on between them at the time that youn were here.

I had a good talk with Brander and Tanner of the American Potash Co. The re was no need of my going down to the plant as there had been nothing more done since my visit a month ago. They are still saying that they are going ahead but the moves are rather slow. Brander admits that he, himself can get nothing out of Wilson and that he and Wilson have an understanding as to the duties of each and that they have nothing more to do with each o ther

~~As Brander explained his~~

#3 Dr.F.K.C.

As Brander explained his relationships with Wilson,they seemed to agree well with my observations concerning him. Wilson seems to be on the jump all of th time but he is far from being communicative. Tanner promised to send t e data concerning their runs but it has failed to arrive as yet and as it is the same that was promised s month ago by Firman,I have my doubts about it coming. They claim that they ave cost data worked up on all parts of their run. This would be interesting if I could only get ahold of it.

On the 28th of Jan.we had a storm and heavy seas here and the beach that is south of the Station was covered to a depth of some two feet with kelp with a width of about 50 feet..This beach is about one mile long. From the weight o f the barrel sent to you,200# per cu.yard ought to be conservative for loosely piled kelp.

$\frac{2x50x5280x200}{27x2000}$ = 1955.tons. In addition there were great windrows of the bulbs along the cliffs north of the Station that must have ment the distruction of hundreds tons of fronds or leaves that had been whipped off out on the beds. I saw another large bank of them in at the Cove at La Jolla. On the Longbeach,as we call it,,it was the plants as a whole,practically that had been torn up by the holdfasts and depobited on the shore. This only adds to t e vieus previously expressed that it would do the beds good to have the tops of the plants cut off and thus save the whole plant being torn out by the holdfast when a storm comes. I believe it will use a lot of material to good advantage and at the same time save the beds themselves. I did not get any data regarding the San pedro beds as no one thinks of areas etc. If we get another storm during the Spring,I believe that it would be worth while for me to go up the coast as far as Santa Barbara and get as near ly as possible the amounts that might be driven ashore and then compare the general conditions to those around San Pedro.

#4 Dr.F.K.C.

I received your letter as to the best manner of clearing up the Ross bill and will take the matter up and settle with him so as to clear the case as soon as possible.

By this time you ought to have the barrel of kelp which I hppe reached you in good condition.

Kindly thank Turrentine for his bulletins. They had some things that were mighty interesting and bear on the kelp work. Give him my r4gards.

Yours truly,

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

February 12, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California,
La Jolla, Cal.

Dear Crandall:

Your letter of February 2 was received a day or two ago, and not answered on account of the pressure of other details.

Undoubtedly you are worth $3,600 a year, and if the permanency of the work looked more certain here I should be very glad to try to push your appointment. On the other hand, if Congress should make the appropriation for this kelp work, I have been thinking to-day that a salary of $3,600 to begin with out of an appropriation of $20,000 would make the overhead charges for the plant pretty steep. At that it might be well worth while, and I think we ought to be considering it at this end and you ought to have it in mind at your end, but I do not think it would be wise for you to count on it or build any plans on it, more especially as within the last two days I have learned that Congress probably will not make the appropriation, in view of the fact that the administration of the Department is luke-

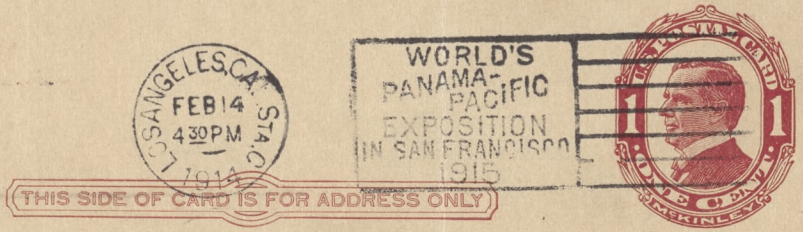
warm toward it and the House leaders are urging on them to cut out every item possible in order to keep down the size of the appropriations and make an attempt at a record for economy. What the outcome will be I cannot even guess, and can only say that with the best light that I have been able to obtain, the prospects are not at all promising for the continuation of our work on the kelp. This is particularly unfortunate in view of the fact that the Kali Syndicate of Germany has announced its intention of putting a $150,000 exhibit in San Francisco at the Fair, and undoubtedly have been largely inspired thereto by our activities.

Sincerely yours,

FRANK K. CAMERON

Frank K. Cameron

Just as soon as I get hold of anything definite I will advise you.



82
96

Capt. H. C. Grandall
La Jolla
Calif

535 West 8th St L. A.
Feb 14 - 14

As agreed =
Must Notify you of our
whereabouts. Call and See us
when Convenient -
Yours Respectfully
Pacific Prep. Mutch
G.

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

February 18, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California,
La Jolla, Calif.

Dear Crandall:

I have read your two letters of February 12 with a great deal of interest, and am glad you have had a chance to talk over matters with Ennis.

I am sorry to have to report that our own experiments on the extraction of the salts from the kelp have been unsuccessful, to this extent, that we invariably got out a large part of the nitrogen or nitrogenous material with the salts, so that the organic residue is by no means as concentrated with respect to nitrogen as we had hoped or expected. In fact, the results of the work in this direction are very disappointing, but it by no means shows that the problem cannot be solved, merely that we have not yet hit on the right plan.

Kelp matters are practically at a standstill here and we are daily looking forward to the introduction of the appropriation bill which will give us a line on the future, whether we are to go ahead with the kelp work or to

drop it absolutely by the end of the present fiscal year. The publication of our past work is not necessarily hitched up with the appropriation bill, but no one seems to be active in the matter, and I am sorry to say I have nothing encouraging to report in that direction either.

I will not attempt to reply to or comment on the various points raised in your letter at the present time, but will wait until Congress has made some move so we can discuss the future more intelligently.

With best wishes and hoping that the opportunity will yet be given us to forward the establishing of an important industry for California and the coast generally,

Sincerely yours,

FRANK K. CAMERON,

In Charge.

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

February 28, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California, La Jolla, Calif.

Dear Crandall:

The appropriation bill for next year has been reported to the House from the Committee, and it is supposed to come up for discussion to-day. It carries no authority for any further work in kelp, and while it is not possible to say definitely yet what will be done, the prospects are very decidedly that we will drop all our kelp work on the 1st of July and will leave further development for private enterprise.

So far as I have been able to learn, the bills introduced by Senator Poindexter and Representative Kettner providing for the publication of our past work, have made no progress, and the prospects of this work being published are not at all bright. I am hoping for better things, but telling you the facts and giving you my judgment, no matter how contrary to my wishes it may be, As soon as there is anything definite I will let you know.

Sincerely yours,

FRANK K. CAMERON,
In Charge.

Mar.16th 1914.

Dr.Frank K.Cameron,
S
Wahington,D.C.

My dear Dr.Cameron:

Friday and Sunday I spent in Los Angeles looking up the Kelp situation again. The trip was a very satisfactory one this time as I got to see practically every man interested in the work. In my talk with Mr.Ennis the following proposition was proposed:

Dry kelp to air dry,then grind fine and then separate the salts and organic matter either by water or else by pneumatic means. Then use the salts either for fertilizer or else for other purposes while the organic matter then might be used for cattle or hog food. The water application might require several applications to properly remove the salts if it is possible at all. Ennis is still interested in the problem and it will not surprise me if a little latter he does not get into the game with some of his associates and go after the business.

I also had a long talk with Mr.J.W.Musselman about the Pacific Kelp Mulch Co. He gave me the whole history of the affair which was as I thought altho I could not get actual statements concerning the affair: The P.K.M.Co. was first started as a Rubber Co. and syock was sold for the purpose of manufacturing rubber bur when this failed to work the Co. was turned over to the new work that we have been watching for the last couple of years. As the work went on there was the necessity of levying assesments and this has had the effect of driving out a number of the stockholders. Evidently ther have been some shady things done as Musselman rather suggested that Shiner and Deacher were now in Arizona somewhere and that they found it more healthy there than in Cal.so someone in Cal.

seems to be looking for them. There evidently was some loose bookkeeping and altho Musselman made no direct charges, still I suspect that Guthrie and he have examined somethings that may now look crooked. The P.K.M.Co. now is trying to negotiate a loan on their San Pedro in order that they may put in a drying plant and go on with the work as they outlined it to me a couple of months ago and as I descrided the same to you. i.e. drying room or chambers, then grinding, mixing with fish scrap or bone Etc. and then selling in small packages for lawn fertilizer etc. They have gotten to a point where they cannot get any more assessments and this is the only way that they can work out. They would get their loan on the San Pedro lease. Their lease is a good one and ought to carry the blanket without trouble. This Co. now seems to be absolutely on its last legs if external appearances count. Musselman is a hotair merchant and they are now reduced to a desk in a bookstore @ 15.00 per month. Their latest address is #535 West 8th St., Los Angeles. They have done no work s ince I lat wrote you about them.

Again on the map: Pacific Products Co. #521 Brockman Bldg., 7th and Grand Ave. Los Angeles. President Mr. Metz, Chem. Eng. Mr. Shoaf, Mgr. Mr. Fisher. At present they have a very nice set of rooms and are prepaing to float an issue of bonds as they find that the stock market is not in shape to float steocks. I was unable to draw out of them the amount of the intended bond issue. They have bought a piece of land in the turning basin as your enter the Longbeach harbor. This is between Longbeach and San Pedro but the entrance is by way of the drawbridge opening into Longbeach. Thisland will be the security upon which they will issue their bonds. They are figuring on putting in a dryer and going into the fertilizer game. They have secured Capt. Lohman and his cutter to gettheir kelp and say that they will be in running order in 60 days after the bonds

are placed. This they figure as being about the first of August. At least they will not be doing anything for some time. I was rather surprised that I should find this crowd again as they seemed to be out of sight. The last that I heard of them was in San Francisco where they were trying to se sell steock. Their Chem Eng. is a Univ.of So.Cal. graduate. This school does not bear a good reputation here as regards work done so there is a question as to the training of Shoaf. He is rather a pleasing appearing young man and on first acquaintance talks well. He is familiar at least with some of the machinery in stock work.

The American Potash Co. is thriving as usual. They have put on a roof over the drier and are installing a three tabled belt that will dry the kelp. It consists of a continuous belt above a second continuous belt and this again above the drying pipes. This they now figure will handle daily about 60 tons. in the demonstration plant. As soon as they get this i order they will begin to try and turn out some of their many salts and by-products. They have found a new market for their KCl among some of the laundries as it is used there for softening purposes. At present the laundries are paying 6½ per lb. for 85% Stassfurt salt and are willing to pay 7½ for 98 % KCl. So they are now out for that market. They have calls for their mother liquor from N.Y. and can dispose of their products in that way if they desire. They have added to their equipmennt materially again as they have now a good 60 ton barge for the work as well as the new equipment necessary for their drying plant. They are at least doing something in the way of improvement altho I still understand that a great deal of their effort is in disposing of stock. They havethree mighty good boats of from 15-30 tons and everyone is a good boat so as Wilson said that even if they could not know all about kelp still they could claim to know good boats and also good machines. I al

I can also see that they have good judgement in thqt way for they very kindly took me to Longbeach to see their plant and then we took the 3 C's and ran out to the kelp beds for a three hours trip. We went as far as Portugese Bend above San Pedro and examined the beds thoroughly for they were as interested as I as to the effect of the last storm upon the beds. The beds showed the outer edge torn somewhat and there evidently had been a considerable amount piled up on the shore but in so far as I could judge the mass of the bed was in as good shape as ever There could not have been a 2 % loss in the beds around San Pedro at least. The plants looked fresh and the beds were heavy. These beds were not torn as much as were the Point Loma beds. As the storm was a very heavy one this was of great importance and it goes to show that the beds can withstand severe storms.

I had a talk with Wilson about harvesting and he told me that they tried a cost experiment out and that on a 24.hrs run they had found that they coulf harvest now for 30¢ per ton. This is lower htan we figured for the work.

Wilson got the kelp that Bernstein had and is making a run on some of it but he claims that it has lost materially potash and that the san d has taken up quite a bit as a silicate which lets down slowly but not enough to be eliminated by lixiviation. He does not care for the Bernstein kelp. He may get into some trouble about this kelp as he went over and took the kelp out of the P.K.M.Co. bldg without their consent and they are after him for doing it. I dont know the status of the case but the animus between the two companies may now have an outlet. As Bernstein is in Canaanea, they can go to it without interuption. The P.K.M.C claim storage for some $2.00 and they want that.

#5. Dr.F.K.C.

Inreviewing the visit, it seems that the companies all have good properties that ought to be worth as much as the plants themselves. This forms their principle pr rather only asset except in the case of the American Potash Co. which now has tangible add also easily negotiable property in it three boats, one barge, a riveting machine, two or three machines one a Cole 6 cylinder, a good motor so that their plant might for the most part be easily converted into cash. Theri buildings are of the usual cheap construction but will serve their purposes well. They do seem to have a mighty big overhead expense with so amany men in the office i.e. Wilson, Firman, Brander, Tanner and daughter, Dr. ---- and one or two more from appearances. That is as big as the working force that I see downm- at the works. They need to get to turning out something with their small plant to make things go. They now really ought to go ahead and do something altho they could withdraw to good advantage. Things did look good thou gh and I do believe that they will now make a go of it even in the face of Branders suggestion that t they may need to reorganize so that Wilson will have to confer more than he does at present. I look for some change in that way but I believe that they will go ahead and do something soon. Brahder, unfortunately left for San Francisco so that I missed him this trip.

Yours truly,

Chas. Caldwell

Mar.23rd 1914

Dr.Frank K.Cameron,

Washington,D.C.

My dear Dr. Cameron:

Today,Mr.M.R.Lunt of the Jersey Milk and Cream Co. of San Francisco was in to see me. During his talk he told me that Mr.M.Collar of 11th and Webster,Oakland Cal. was now appying for a patent for a cutting and pressing machine . Confidentially he said that Mr.Collar is an employee of Armour and Co. and that the proposition is one with the idea of feeding the leached kelp to cattle. He intimated that the Armour people were behind Mr.Collar in line with the recent activities that they have been interested in in raising and feeding cattle. Mr.Collar has been experimenting at Sant Cruz and latter at Half Moon Bay. At present they are doing nothing but rather waiting now for developements along some feeding experiments.

It is true that Armour and Co. are dickering with several of the western cities for a site for a plant and so there may be something in what Mr.Lunt has told me. As Turp is to be out this way,I thought that it might save considerable money if he might drop off at Redwood City and run over to Half Moon Bay and see whether there is anything to the rumour. Also he might see Mr.Collar and get some information out of him. There isn't enough in my traveling fund to stand a trip for that purpose and it at present may not be worth such expenditure. They are firguring on the local beds if they do business at all and you can get an idea of their patents where you are. They claim that they can cut 400 wet tons in an 8 hr. day and that they have demonstrated it.

Yours sincerely,

W.C.Crandall

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

March 23, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California,
La Jolla, Calif .

Dear Crandall:

I am very glad indeed to have your letter of March 16, and I trust Ennis is going to come out all right in his experiments. He is a very charming man personally, and I think one of great force and when he gets behind a thing it is pretty apt to move. We have, however, had very wretched luck in our efforts to separate the soluble salts from the organic residue of the kelp without at the same time extracting the nitrogenous substances.

We wish you to send us, as soon as convenient, another large sample of kelp, and this time use either toluene or chloroform, as these are the only antiseptics which can be used for the experiments we have in mind. I believe we have a clue which, if followed up, may settle the problem for us, and incidentally for Mr. Ennis.

I am sorry the Pacific Kelp Mulch Co. is turning out so badly. In spite of their reported monkey shines, they at least deserve credit for having made a real effort

to market kelp, and for that reason deserve a better fate. At the same time it is gratifying to hear that the American Potash Company are showing signs of real activity. I think your criticisms of them, however, are entirely just, and it seems a pity that Brander does not take hold of the matter more seriously and insist upon straightening out the business side.

I regret to say that the prospects for continuing our kelp work after the first of July are still very gloomy. It is quite possible that I may see Mr. Kettner and one or two others before long, and get a more definite idea of the situation. It is also possible that we will not be able to form a definite judgment of the prospects until after the Agricultural bill--which has passed the House--has been taken up by the Senate.

Dr. Turrentine left last night on a somewhat extended trip which will bring him to Los Angeles very shortly, probably within the next ten days or a fortnight, and he will of course run down to San Diego and see you, and will probably be able to explain matters better than I can attempt to do in a letter.

With best wishes,

Sincerely yours,

Frank K. Cameron

FRANK K. CAMERON,

In Charge.

RLR

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

March 24, 1914.

Mr. W. C. Crandall,

Dear Sir:

Your expense account for the month of Feb.- March has been received and audited, and will this day be certified to the Disbursing Office for payment.

Amount claimed, $ 24.12 Amount certified, $ 24.12 Difference, $ ---

(The unexpended balance of your L. A. No. 62-So at close of month covered by this account was $ 7.70 .)

Respectfully yours

D. T. Earle

acty Chief Clerk.

Differences arise as follows:

The unincumbered balance of your allotment is $7.70. If you anticipate expenditures in excess of this amount prior to the close of the current Fiscal Year - June 30, 1914, kindly so advise Dr. Cameron in order that he may increase your allotment.

8—1273

THE SCRIPPS INSTITUTION FOR BIOLOGICAL RESEARCH
OF THE
UNIVERSITY OF CALIFORNIA

LOCATED AT LA JOLLA
NEAR
SAN DIEGO, CALIFORNIA

LA JOLLA, CALIFORNIA,

Mar.31 1914.

Dr.Frank K.Cameron,

Washington.D.C.

My dear Dr.Cameron:

I will forward you another barrel of kelp in a couple of days. The fishermen are now working on the halibut beds and I will have to lay for my chance with them. We do not happen to be going out with the boat at present and so I must get them to do the work.

By the way, I received a notice from the Clerk in your department that my balance in the traveling fund was reduced to $7.07 and that if you wanted more work done that I should get a refund for I was to write to you to get the amount for the budget raised. If you want me to do more of the investigating around Los Angeles and want to raise the fund well and good, or if you dont and want more data we'll get it anyway and expenses be dammed. I'm doing what the Dep't told me to do but I shall not let that stand in the way for a minute as long as the little that I am able to do is worth the while. Whenever you want data from this neck of the woods, let me know and I'll look out for it gladly.

Yours sincerely,

W. C. Crandall

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

April 4, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California,
La Jolla, California.

Dear Crandall:

I have just received your letter of March 31, and am glad you are going to be able to send us the kelp. A day or two since, after our financial clerk had written you, I learned that a letter had gone forward. I am leaving to-morrow, Sunday, for Cincinnati for a week's absence from town, but soon after I return I will take up the matter of allowance for your traveling expenses and arrange to give you a wider margin.

I do not know at the present time just what there is to be done within the next few months, but the prospects at this writing are that we will drop all our kelp work from the first of July, but it not safe to take these matters as necessarily final, because the whole situation may change within the next week or two. Our appropriation bill has not yet been reported to the Senate, much less passed by that body, and until it is--and even then perhaps not until after the conference between the House and the Senate conferees has been held--will we know just where we

stand and what we can do after the beginning of the new fiscal year.

I appreciate sincerely your warm expressions, and will be glad to reciprocate in any way practicable at this end of the line. I trust by this time you and Turrentine have gotten together and wish circumstances were such that I could be with you myself.

Sincerely yours,

Frank K. Cameron

FRANK K. CAMERON,

In Charge.

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

San Francisco, California.
April 11, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
La Jolla, California.

Dear Crandall:

I am in receipt of your letter of April 6th enclosing one from Cameron of date of March 30th. In reply to yours I would say that I went to Oakland to see Mr. Collar. He is the Manager of the Armour store there. I asked him about his connection with the kelp project, and he replied that he and his brother-in-law, Mr. Lunt, are trying to organize a company for the manufacture of potash and fetlilizer from kelp. He says that the Armour Company have no connection whatever with the project, and in fact are not aware that he is interested in such a thing. He says furthermore, that Mr. Lunt is still in San Diego, has been there for the past three months, and has done all of his experiments there. He disclaims any knowledge of Mr. Lunt's experiments, claiming that he is to attend purely to the business end while Mr. Lunt id to run the manufacturing end. They have applied for patents on a Harvester, and, I believe, on methods. He seems to think that there is something very fine in his methods, but from what I was able to learn from him concerning them, they don't amount to much. Mr. Collar would not talk frankly, but I am inclined to believe that he doesn't know very much to tell. Nothing at all was said about Half Moon

Bay in view of the fact that he stated that all the work had been done at San Diego, I had the feeling that I would be calling him a liar if I said anything about Half Moon Bay.

How m uch of this agrees with what Mr. Lunt told you? I saw your letter to Dr. Cameron, but don't remember exactly what it contained. I am wondering if it is worth while for me to go down to Half Moon Bay on a quiet hunt. What do you think about it?

I have several days more work here still. I probably shall not get away before Wednesday or Thursday. You will have time to reach me here by letter before I leave.

I am still trying to get some sleep, though between us, San Francisco is a very poor place in which to sleep,

With all kind regards,

Yours very sincerely,

T. W. Torrentine

Scientist.

FORM 2.

BUREAU OF SOILS.

U. S. DEPARTMENT OF AGRICULTURE,
Official Business.

PENALTY FOR PRIVATE USE, $300

W. C. Crandall, Esq.,
Scripps Biological Inst.,
La Jolla, Calif.

Apr. 15 '14

St. Francis. S.F.

Dear Capn:-

Yrs. received tonight. Interested to know that somebody has lied. Thought so myself. Am inclined to go down, as you suggest, for a bit of detective work. The address you want is 1520, 6th St. - or at least that is the address that was given me. Shall be in Los Angeles by Monday morning. Yrs as ever Tutt

April 25th 1914.

Dr. Frank K. Cameron,

Washington, D.C.

My dear Dr. Cameron:

While it was raining the other day, a man came into the Station and asked for a peice of rope to use as a chain and when I took a second look at him I saw that it was Shiner, the old friend in the kelp work in the P.K.M.Co. He was asmuch surprised to see me as I was to see him and he told me that he had been down in Arizona and had just sold out a vanadium mine. Then he came through with the news that he was going back into the kelp business again. Now here is a chance for either Riggs or Frye to get busy if they haven't found the following firm

"The Aquatic Products Co." #607 Pioneer Bldg., Seattle Washington. This company is composed of 5 subsidiary companies each one capitalized at $1,000,000 or a teotal of $5,000,000.00. The English are its backers and they have disposed or floated the stock in London. The promotors hold 51% of the stock. Then I got this quëit tip that Shiner held 1/10 of the Aquatic stock. That he would of course drop his P.K.M.CO.; to take ahold and work the Northern Company. Shiner appeared his usual self and just as free with his information as usual. He was in a rush to get up the hill though and so I didn't have time to get any more out of him. Query: Is there such a company?

This is at least a pretty good yarn to get while sitting out here 17 miles from town on a rainy day.

Yours truly

W. C. Crandall

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.
FKC/D

April 29, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California,
La Jolla, Calif.

Dear Crandall:

Yours of the 25th just received. I am very much interested in what you found out from Shiner. His English company I have heard of before, but reports which have come to me indicate that it is practically a stock selling proposition with no very earnest intention to actually produce kelp products. I hope, however, that they are really in earnest. I will stir up Frye and try to get something more definite concerning their doings, and will advise you if I succeed.

The Senate Committee has reported the House bill and among the various amendments is an item authorizing and directing the publication of the kelp maps and accompanying report. The bill has not yet been acted upon by the Senate but the prospects seem fairly good for the authorization of the publication of this material, although even at the best it will probably be a year from date before the material is available to the public. The interest in kelp and potash

generally has greatly diminished at this end of the line and I doubt if little further effort is to be made in the near future to follow up our past work. The great interest at the present in Congressional circles so far as fertilizers are concerned is in the production of atmospheric nitrogen products. This is being more or less actively propagated by the people who are interested in water power, because the agricultural argument is the best one they have with which to influence Congress and the public generally to hasten a settlement of the water power problems, but as a matter of fact the evidence continues to become stronger and stronger that atmospheric nitrogen products by hydroelectric methods have no future in the American fertilizer business. We will probably have, however, an opportunity to do some interesting work and get some valuable data for science if not for the business. And there is always the lingering possibility until Congress has finally acted that the kelp problem, as the most feasible one for supplying potash, shall be followed up.

Sincerely yours,

Frank K. Cameron

FRANK K. CAMERON,

In Charge.

San Francisco, May 5/14.

W. C. Crandall,
Marine Biological Association,
La Jolla, Calif.

Dear Sir:—

Referring to Fertilizer Resources Doc. 190, page 42; the statement is made that at the time of this survey the tonnage of kelp surveyed near Monterey run from 80,000 to 100,000 tons. What beds does this include and are they as heavy now as at that time. As to Cano Nuevo, Santa Cruz and Capitola Beds what is your opinion as to tonnage of same, Cut at 4 to 6 feet below surface of water and is it practicable to harvest in a commercial way, owing to heaviness of rocky coast line and roughness of sea in this location.

Would it not be a difficult task to keep a large harvester out of the breakers.

Thanking you in advance for a prompt reply I remain

Very truly yours—
W. R. Lund.

May 27th 1914.

Dr. Frank K. Cameron,

Washington, D. C.

My dear Dr. Cam eron:

Today I happened to run across both Lohman of the old C.C.Co. and a little latter I ran across Brander.

Lohman was rather possimistic about the American Potash Co.

Brander and I had a good talk. He has resigned from the directorate and vice-presidency as he and Wilson were unable to make a go of it and Brander is afraid that Brander is making many representations that are not true in fact or in possibility and is trying to get out of the Company He gave me a confidential inside to the whole proposition.

There has been taken besides the boats that were gotten from the CCC over 80 000 and of this there are not more than 15 - 20 000 visable assets all of the rest has gone out to salaries, maintenance etc. Of course this is too much for the running expenses of such an Institution and will mean that the affair cannot succeed as long as they do not ppt a greater proportion of the monies received into the business. . Branders estimate of the probable assets would agree with what I should appraise the buildings and machinery at although I had thought that the boats had come from the new Co. buying the C.C.C. out but Brander says not. So far as finances are concerned then, the Amer. Pot. Co. is not getting value received and is rather doing little more than selling stock. From this I am not surprised that such a man as Brander is trying to get out.

Wilson is claiming to prospective buyers that he-- within 90 days there will be a dividend of at least 40%. As everything goes to show the is no possibility of such a showing being made. In fact his own associates

have to correct him by saying after the mill is in working order etc. This does not sound well. They have now found that the old incinerator will only handle about half of the kelp that it was expected to handle. No run for a real test has yet been made. Their costs that they have given to us have been based only on labor charges or account and do not allow for fuel expense or for wear and tear on the boats, apparatus or machinery so that they really have no cost basis. As I told you before they own two machines and these are used without regard to expense and really as private cars. It looks rather as if there was to be an unloading somewhere along the line within a short time.

Mr.H.H.Henderson has been made director in the place of Mr.Brander and it is expected that two more L.A.Business Men may be put on the Board in which case things may look up. Mr.Henderson has been connected with the Street R.R.in L.A for some time I believe.

Dr.Merrill and Brander are thinking of trying the kelp game as you have outlined it on the various bulletins, talks etc.i.e. drying and cutting. Also there is a group of men in San Diego that are talking that phase over at this time. As Merrill and Merrill are both thinking of getting out of the Amer.Pot.Co., I believe that I ought to go up and see how things are and what has actually been done recently and if possible I am going to go up there on the 12th of the month and put in some time getting at the bottom of that affair. It seems to me after this talk with Brander that there is more reason to get a good line on the bunch and see what is going on than there has been for some time.

Have not gotten any information as to the new Frisco CO. yet but Brander promised to send me one of their post cards.

With best regards to you and Torrentin, I am

Yours Sincerely
W.C.Crandall

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

May 29, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
La Jolla, California.

Dear Crandall:

Yours of the 23d with bills enclosed is received. These latter and the vouchers have been turned over to our financial clerk and will go through the usual course.

I shall be glad to hear what you find at Long Beach. A visitor to this office a few weeks since reported that Mr. Brander had closed out his business connections on the coast, had gone to Europe and was not expected to return. Since then Turrentine has written to me that he had quite a long talk with Brander and he gave him no intimation of such a proposed move, and he doubts its accuracy. It might be well for you to run this matter down in connection with your proposed investigation of the American Potash Company.

Mrs. Stevenson, the widow of old Mr. Balch's backer, was here a few weeks since and I had a couple of interesting interviews with her principally relating to the Pacific Kelp Company, the financial friends of her late husband, partly in her own interests and partly in Mr. Balch's. It seems that she has quite a considerable finan-

cial interest in the Balch patents. I should think it quite likely that she will accept my suggestion and look you up on her return to San Diego and get your personal views as to the prospects on the coast.

Our item for publishing the kelp work we have already done seems safe now, but it will be yet some eight or nine months before we can get the material out as nothing will be done on the work until after the 1st of July and then then there will be a long delay in preparing the material for the lithographers.

The interest in the kelp work among the fertilizer men in the South has just commenced to be keen, and it seems to be developing fairly rapidly and quite strongly. Nevertheless, I think it altogether probable that we will drop out of the kelp work entirely on the 1st of July, at least for a while. If the sentiment gets strong enough to induce Congress to do anything specific about it, we can take it up afresh, ~~but~~ The delay is not desirable, I am aware, from the viewpoint of the welfare of the industry, but it seems to be the only step offered to us in view of the administrative situation.

I had rather anticipated another personal trip to the coast a little later in the year, but this does not seem so probable just now, and there are a number of developments

here which it appears are likely to claim my immediate attention. If it does not appear feasible for me to visit you, I trust you will have an opportunity to come to Washington yourself.

Sincerely yours,

FRANK K. CAMERON.

Frank K. Cameron

In Charge.

June 3rd 1914.

Dr. Frank K. Cameron,

Washington, D?C.

My dear Dr. Cameron:

Your letter of the 29th at hand.

Since you heard from me in the letter previous to yours of the 29th, I have seen Mr. Brander and sent on the report to you. Mr. Brander may go to Europe in time as his wife is there on a visit but if he goes it will only be for a short trip I am sure. I have an engagement to meet him at the Sierra Madre Club when I go up next week if I can make Los Angeles at a convenient hour. I should say that there is nothing to that report. However he has gotten out of the active work in the company as per my last letter.

I shall be glad to see Mrs. Stevens.

I am glad that there will be some final work done on the printing of our work at last. I hate to see that work practically go to waste although I know that that is the fate of a good deal of the work that is turned out.

I am sorrythat you will be unable to get out to the Coast soon. In fact it would have pleased me very much if you might be here about the 25th of this month. However if there is anything that I can do anywhere along the line, let me know and I will do the best that I can to put whatever you want through.

I anticipate that Dr. Ritter may be down your way in July and I will ask him to call around and see you if he does go to Washington.

Yours sincerely,

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

June 6, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California,
La Jolla, Calif.

Dear Crandall:

I have just returned from a short trip out of town, hence the delay in answering your letter of May 27.

The data you have gotten is extremely interesting, but I am very sorry to hear that the American Potash Company is in such bad straits, and I shall look forward with great interest to the results of your further investigations, especially as regards the proposed plans of Merrill and Brander. I have had one or two letters from Knapp, from San Francisco. He seems to be stirring things up in that neighborhood, but the best place, in my judgment, to start the kelp industry is San Diago.

Turrentine is still in the field, and I have heard nothing from him other than formal statements of his movements for some time. He appears to be doing very good work. I shall give him your greetings as soon as practicable.

Very truly yours,

FRANK K. CAMERON

Frank K. Cameron

In Charge.

June 8th 1914.

Dr. Frank K. Cameron,

Washington, D.C.

My dear Dr. Cameron:

Enclosed find the advertizement that I was after when I wrote to you last time. I know nothing of these people and cannot find out any track of their having been in San Diego. I have no knowledge of their having put out any bids for a plant location but if any thing comes up I will be kept posted by the Secretary of the Chamber of Commerce.

Nothing new otherwise on the kelp situation at present.

Yours sincerely,

W. C. Crandall

THE SCRIPPS INSTITUTION FOR BIOLOGICAL RESEARCH
OF THE
UNIVERSITY OF CALIFORNIA

LOCATED AT LA JOLLA
NEAR
SAN DIEGO, CALIFORNIA

LA JOLLA, CALIFORNIA,

June 8th 1914.

Mr.Percy T.Hannigan & Co.,
407 Phelan Bldg.,
San Francisco,Cal.

Sirs:

One of your advertizing folders has come to my hands. I am much interested in the developement of the Kelp Industry and would like to have the following information which I assure you will be kept as confidential when you express such a wish.

Where will you locate?

What is your capital stock?

Who are your officers?

How many tons do you expect to handle daily?

Whose or what cutter will you use?

When do you expect to begin work?

What capital will be put into the plant itself,i.e. machinery,boats

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LA JOLLA, CALIFORNIA,

barges, cutter.

What capital will be used for overhead expense?

How will the stock be sold?

How much will be held as treasury stock?

You may wonder who I am, but if you will look in Senate Doc. #190, you will find that I did the survey work for the government from San Diego to Point Conception and have since been connected with the Bureau of Soils. As I must put in my yearly report within a few days, I would appretiate it very much if you would send me the above data so that we may have a complete record of the status of the kelp problem on the Pacific Coast.

Thanking you for the above information, which I know you will recognize as of importance to you as well as to us and trusting that we may serve you in the future, I am

Yours sincerely,

Kelp Expert.

San Francisco, June 10/14.

W. C. Crandall, -

Dear Sir.

Will you kindly give me an estimate of tonnage of kelp in San Diego Beds - cut at 8 feet below surface of water.

Senate Doc. 190 seems to be rather indefinite on this point.

With your extensive knowledge of conditions - along the coast at your point, how many days - a year would you consider it practicable to harvest the kelp. Thanking you for these points

Yours very truly

W. H. Lunt.

DEALERS IN
REAL ESTATE
LOANS, MORTGAGES AND
INVESTMENT SECURITIES
BRIGHTON BEACH
PROPERTIES

PERCY T. HANNIGAN & CO.

407 PHELAN BUILDING

SAN FRANCISCO

TELEPHONE SUTTER 2823

OFFICES OF
BRIGHTON BEACH
DEVELOPMENT COMPANY
OCEAN SHORE REALTY SYNDICATE
FINANCIAL DEVELOPMENT CO.
BRIGHTON BEACH LAND AND
AMUSEMENT COMPANY

June 11th, 1914.

Mr. W. C. Crandall,
La Jolla, Cal.

Dear Sir:-

Answering the questions contained in your letter of the 8th instant: We will locate on the shore of San Diego Bay, probably in the vicinity of La Jolaya.

The corporation, KELP PRODUCTS COMPANY is incorporated for two hundred thousand dollars, comprising two hundred thousand shares of the par value of one dollar each and all common stock. Mr. Blanckenburg is president of the corporation and Adolphe Artz is secretary and treasurer.

We will handle about one hundred tons of wet kelp per day. We will use cutter of our own construction on the principal of the draw-cut mower.

We expect to begin the work of constructing the plant in about ninety days and be operating four months from that time.

The plant itself, including machinery and harvesting barge will cost thirty eight thousand dollars. About fifteen to twenty thousand dollars will be kept on hand for working capital.

Altogether about one hundred and forty thousand shares will be issued leaving sixty thousand in the treasury. Mr Blanckenburg and Mr. Artz have worked for four years on their process, which is now in the United States Patent Office for the benefit of the company and the money that is being raised is strictly for erecting and operating the plant.

Will be in San Diego in the near future and will take great pleasure in calling on you and trust that you may become interested in this project yourself.

Very truly yours,

Percy T. Hannigan

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

June 15, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California,
La Jolla, Calif.

Dear Crandall:

Yours of the 8th with enclosed advertisement is at hand. I am much interested in the ad. and am wondering how they got the picture, which apparently belongs to the American Potash Company. I think it would be wise to look them up and see if you can find out something more definite about them, as they are new parties to us.

It also appears from letters that are coming to us that a Mr. Lunt, who seems to have been located originally at Los Angeles, but now of San Francisco, has been representing himself as a U. S. Government employee, investigating kelp, and strangely enough has fooled some people into believing this, while at the same time he appeared to be selling stock. Of course, we are not policemen for the protection of everybody on the Pacific coast who are gullible enough to listen to wild-cat promoters, but at the same time we feel a strong disposition to whack on the head any performances of this kind which come to our attention, and if

you see or hear anything of this Mr. Lunt, to his credit or otherwise, we shall be very glad to have you attend to it.

Very truly yours,

FRANK K. CAMERON,

In Charge.

I presume you will be willing to continue with us on the present basis for another year. I don't think it advisable to drop the kelp business altogether just yet although your work is all we are contemplating for the immediate future. Write me your views as soon as convenient.

Yours Cameron

6/17/14

Mr. [illegible].R.Lunt,

San Francisco,Cal.

Dear Sir:

Inreply to your letter of the 10th inst.I find ye following figures.

Area Kelp Bed #1 Doc.#190 5.4mi at a depth of 8' gives 6,690,816 tons of wet kelp.

Area bed #2 " 2.3 " " 2,849,692 " " wet kelp.

One could figure in this district that they might wotk to advantage at least 300 days a year. In fact one could work almost all the time as there are v very few spells of bad weather here. This is not true above Pt. Vincente.

YEurs truly,

W Chandler

Business Manager.

6/17/14

Dr.Frank K.Cameron,

Washington,D.C.

My dear Dr.Cameron:

As a last dying effort,I will try to give you the latest and most complete information that I can on the Kelp Industry of Southern California. I spent two days again lastweek trying to find out all of the comings and goings of the companies.

American Potash Co.

Reorganized or rather in the process of reorganization at the present time, Wilson let out after he has turned back into the Company all of his stock and interests and he is absolutely cleaned out so far as the company is concerned. The C.C.C.interests are allowed some consideration in the way of stock in the reorganized company but they are in the minority now. Firman will be let out if he does not come through with his resignation that has been asked for. Brander is no longer V°P nor on the Board of Directors

At present the Company is made up as follows:

Pres. J.W.Gleason

V.P. C.A.Henderson (Gen'l Mgr. of the Huntington Interests in Los Angeles and thereabouts.

Secretary Tanner.

Manager O.N.MacAleer former the Boiler Mayor of L.A. and later with the Baker Iron Works. Recommended as a good practical man.

Agent on the Board Geo.W.Norman and the man with whom I talked.

Chemist Dr.S?R?Oppenheimer.

The new bunch swept things clean except for Tanner who still hangs on. An assesment has been made for $2.00 a share. They claim that they will get right to work and do something. They are to let the by-products go for

CONGRESS LINEN BOND 1913 VALLEY

the present. They will only go after the potash saving the rest for work later but not doing anything with their distillation process.

Forman claims that the Company has received 110 000 dollars so far fro the sale of stock and that this cannot be accounted for at the presernt time. The proposition is not one in which they claim robbery or embezzlement but an extreme case of leak at least. So Wilson is in the discard and I saw him but he got away before I could catch him. He didn't seem to want to wai for a talk.

Pacific.Kelp Mulch Co. 8th and Grand L.A.

Officers Same as before except that Guthrie is not president and Ed Shiner ice president is acting president.

At present the other Shiner and Mussleman are in S eattle figuring with the company that I wrote to you about some time ago about the matter of com bining the fish scrap industry with the kelp industry of this district. It seems that this proposition is one in which some of the salmon fishermen want an outlet for their fishscrap and thr P.K.M.Co.is out after the combinat ion. They made some more assesments and thereby have reduced he number of shareholders considerably. Suspect that Guthrie may have been amongst them They let this slip out accidentally during our conversation.

Pacific Products Co. Brockman Blk L.A.

President Chas,Metz

Vice President and Chem Eng. Paul S.Shoaf

Sec.-Treas. W.Frank Fischer

Still working on the leasing of their land at the turning basin as one goes into Longbeach harbor. Will do nothing about machinery until the land roblem can be properly financed. No progress.

Cheney feel out of the race.

#3. Dr.F.K.C.

Kelp Products Co., San Francisco,Cal.

Letter received by me from them.

.C.Crandall La Jolla,

Answering your questions contained in your letter of the 8th inst: e will locats on the shore of San Diego Bay,probably in the vicinity of La Playa.

The Corporation,Kelp Products Company is incorporated for $200 000 comprising 200000 shares of the par value of one dollar each and all common stock. Mr.Blankenburg is president of the corporation and Adolphe Artz is secretary and treasurer.

We will handle about 100 tons of wet kelp a day. We will cutter of our own construction on the principal of the draw-cut mower.

We expect to begin work of constructing the plant within ninty days and be operating four months from that time.

The plant itself,including machinery andharvesting barge will cost thirty eight thousand dollars. About fifteen to twenty thousand dollats will be kept on hand for working capital.

Altogether about 140 000 shares will be issued leaving 60000 in the treasury. Mr.Blankenburg and Mr.Artz have worked for four years on their process,which is now in the U.S.Patent Office for the benefit of the Company and the money that is being raised is strictly for erecting and operating the plant.

Will be in San Diego in the near future and will take great pleasure in calling on youand trust that you may become interested in this project yourself.

Yours truly Percy T.Hannigan/

#407 Phelan Bldg., San Francisco,Cal.

VALLEY CONGRESS LINEN BOND 1203

#4. Dr.F.K.C.

Mexican Kelp Fertilizer Company.

Be nstein is away and the outfit has simply gone out of immed ate existance. Probably their obituary might be written.

Had an inquiry from M.R.Lunt this morning about amounts of kelp adjacent to San Diego and the number of working days etc. That is the outfit that I asked Turrenti ne to look up. Collar is in Berkeley.

That cleans me up to date so that you can cl se your fiscal year with the latest dope on our problem I shall be mighty sorry to have this work go by the board but I don't think it will be fair nor probably legal for me to investigate them further as from your last letter I judged that the Collaborator position ceased with this month. However whenever I can be of assistance, feel fr e to call on me and I will try and do the best that I can.

Yours sincerely,

W. C. Crandall

Collaborator.

6/17/14.

Mr.Percy T.Hannigan & Co.,

San Francisco,Cal.

Dear Sir:

Your letter of the 11th is at hand. Thank you for your courtesy regarding my inquiries.

At any time that you are here,I will be glad to have you call on me and talk the situation over. One can find out whether I am in or not by telephoning the Scripps Institution at La Jolla. It is well to do this as I am frequently out.

Yours sincerely,

W.C.Crandall

Kelp Expert.

June 22nd 1914

Dr. Frank K. Cameron,

Washington, D.C.

My dear Dr. Cameron:

It would certainly give me great pleasure to be able to continue the present kelp investigation for the Bureau of Soils under the present arrangement. I have disliked the idea of having to give it up but from your last letter, thought that that was what you would have to do.

Yours sincerely,

W. C. Crandall

June 22nd 1914

Dr. Frank K. Cameron,

Washington, D.C.

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Yours sincerely,

ADDRESS ALL COMMUNICATIONS TO
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UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

June 24, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California,
La Jolla, Calif.

My dear Crandall:

Your letter of the 17th is indeed most interesting, and I shall undoubtedly find it useful for frequent reference.

I have taken up with the Chief of the Bureau the matter of your work. He approves of my recommendation that you continue on our rolls as a collaborator. While we are not expecting to actively engage in kelp work in the immediate future, I am by no means satisfied that we are justified in dropping it entirely, and I feel it necessary that we have an agent on the Pacific coast to keep us posted, and undoubtedly it is also desirable that you should continue observations on the effect of cutting. Therefore, if you are willing to continue the connection, we wish it to so continue. The appropriation bill has not yet passed, but as soon as it has and we are in consequence in position to make up our allotments and assignments for the year, I shall be glad to take up with our financial clerk the assign-

ment of traveling expenses, etc., for you. Any suggestions along this line which you are prepared to make I shall be glad indeed to have.

I am in receipt of information from various sources that the University people at Berkeley are writing very disparagingly of the value of the kelp. This seems to me most unfortunate. The interest in it among the fertilizer manufacturers of the South is growing and becoming very strong, but I doubt whether it will have any particular influence on us in the immediate future, but in the course of a few months we will be in a better position to judge.

With best wishes,

Sincerely yours,

FRANK K. CAMERON,

In Charge.

Frank K Cameron

The weather here is something awful. I long for San Diego.

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"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

July 1, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California,
La Jolla, Calif.

Dear Crandall:

I am enclosing herewith copy of your Authorization for the current fiscal year. Of course, if more money is needed, this can be provided for as the occasion arises, but I am inclined to think that the amount which we have agreed upon here is a reasonable one until some special necessity arises.

Hereafter, instead of a per diem, you will be expected to submit a detailed expense account, which, under the regulations, must not exceed five dollars ($5.00) per day for subsistence and lodging. According to legislation recently enacted by Congress there is no possibility of a waiver being obtained in excess of this amount. For men doing the type of traveling such as you are we have found the per diem arrangement unsatisfactory in the majority of cases, and feeling assured that this condition of affairs applied to your case, on my recommendation the change was

made for you also. Please advise me if this is in all respects satisfactory, and if not, in what.

With best regards,

Sincerely yours,

FRANK K. CAMERON,

In Charge.

Enclosure.

Santa Ana, Calif. July 8, 14.

Prof. W. C. Crandall,
La Jolla, Calif.

Dear Sir:- In a recent letter from Mr. F. K. Cameron of the U. S. Dept. of Agriculture I learned that you are making some experiments of the effect of cutting kelp, and as I have been investigating the possibilities of the kelp industry during the past few months, I decided to take the liberty to write you asking for a appointment with you in order to secure such information as you would wish to give me.
I have investigated the work done by the various companies in and near Long Beach, but unfortunately their existance was of very short duration and consequently not much information could be gathered. In spite of the failures of these companies, I still feel confident that if one goes into this field with a sound commercial object in view and not a stock jobbing plan, that a good substantial business can be developed.
I am particularly anxious to learn what the facilities for harvesting and transportation are in the fields in the vicinity of Point Loma.
If your time will permit I certainly would appreciate an opportunity to come to La Jolla and discuss this matter with you.

Very Sincerely Yours
P. N. Eggo

1330 Bush St.
Santa Ana

THE SCRIPPS INSTITUTION FOR BIOLOGICAL RESEARCH
OF THE
UNIVERSITY OF CALIFORNIA

LOCATED AT LA JOLLA
NEAR
SAN DIEGO, CALIFORNIA

LA JOLLA, CALIFORNIA,

July 9th 1914.

Mr. T. H. Egge,

Santa Ana, Cal.

Dear Sir:

Your letter of the 8th is at hand. I shall be either in La Jolla or in San Diego for the next few days and you can call at any convenient time if you first call up La Jolla 36 W and get track of me through to Station. I shall be glad to see and have a talk with you.

Yours truly,

W. E. Ritter

WILLIAM KETTNER
11TH DISTRICT CALIFORNIA

MEMBER OF
COMMITTEE ON RIVERS AND HARBORS
HOUSE OF REPRESENTATIVES U. S.
WASHINGTON, D. C.

July 13, 1914.

My dear Friend:-

So you have joined the ranks of the "benedicts"! Mrs. Kettner and I wish for you every happiness and hope that we shall have the pleasure of meeting Mrs. Crandall very soon, when we can tell her the good things we know about you, and express in person our joy at your good fortune.

Yours most sincerely,

William Kettner

Mr. W.S. Crandall,
Biological Station,
La Jolla, Cal.

K.

San Francisco, July 28/14.

Capt. H. C. Crandall,
La Jolla, Cal.

Dear Sir;—

While at your station last February you gave the the writer considerable information on the kelp beds.

You stated at that time you had marked off portions of the beds so as to watch growth and regrowth of same. Could you give me any data from results of your investigation along this line.

Have you made any further research on the following;
Water content in growing kelp;
Per cent of ash, and analysis of same;
Analysis of potassium chloride as obtained from this ash;
Specific gravity of kelp or the weight of a cubic foot of freshly cut kelp and also weight of a

cubic foot of dry kelp.

Thanking you kindly for past favors and hoping you can give me the above information assuring you that same is greatly appreciated I remain

Very truly yours
W. P. Lund.

680 - 8th Ave.
San Francisco Cal.

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.
FKC/D

July 14, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
University of California,
La Jolla, Calif.

Dear Crandall:

Yours of the 7th just at hand. The amount of $200 which has been allotted to you is for travel and subsistence expenses and has nothing to do with your regular salary, which remains the same as heretofore. I am forwarding the blank to the proper office.

Your cards came duly to hand several days since, and I wish you and your wife all the joy in the world, and congratulate you from the bottom of my heart. On this subject I will want to communicate with you again a little later.

So far as the kelp work is concerned, we are doing nothing now but what you have in hand. The publication of the kelp maps and the report accompanying them has been taken up by the Chief of the Bureau personally, so I am not very clear at present as to just what will be done with them.

Very truly yours,

Frank K. Cameron

FRANK K. CAMERON,
In Charge.

July 31 1914.

Mr. M.R.Lunt,

San Francisco, Cal.

My dear Mr.Lunt:

In reply to the questions of your letter of the 28th, allow me to say in reply

1. No more definite knowledge can be given regarding the rate of growth than that the dormant period for the Macrocystis p. appears to be during the spring months while at other times it seems to grow about the same. This is probably its sporing time.

2. You have all of the results that I have as to the ater content, ash etc.

3. Question three would vary so much that it would be better for you t get a cubic foot of kelp and weigh under the conditions that you desire.

4.- At present the Federal Gov't has had to give up active investigation of the kelp and so I have no additional information available. Question three I am not able to do for you just at present as there is too much work on hand here for me to get out and get the kelp.

I take it that you are s ill at work and are anticipating some work in the kelp.

Yours truly

Aug.23rd 1914.

Dr.Frank K.Cameron,

Washington,D.C?

My dear Dr.Cameron:

In my report to you I took up the affairs as I have found them for the Bureau. Now for a little private talk with you.

Mr.Scripps is interested enough in this proposition to say that if in a trial run s as to see that a methed is really available that he would be willing to put a matter of $60 000- 110 000 into a working plant for a year and then divide the profits from the plant. A goodly share of the profits would be given to those in charge of the actual work and salesforce. Now I believe that we could do this thing properly and each make a good deal of money out of the deal as well as develope an industry thay we have both become much interested in. As I see the work now there is only one drawback and that is the drier. So far that is not a settled factor and unless that can be actually worked out,the proposition would fail.

There is in addition to the possible rotary drier,the possible drier that works in a long shed and that has a continuous belt running through that would take the kelp from the lesser to the greater heat. This would be similar to some of the brick driers that are found in the middle west. The principle would not be unlike a kiln only that the belt would move the kelp instead of the kiln revolving.

I can see where there may be a good future in this work if worked rightly but it needs mighty careful consideration. Let me know what you think of the proposition and whether we o ght to consider it or not.

Yours truly

Aug. 23rd 1914.

Dr.Frank K.Cameron,

Washington,D.C.

My dear Dr.Cameron:

The last few weeks I have been doing some work on the kelp work as on Aug.3rd,I gave a talk on Kelp for the University Extension and before the Rotary Club in San Diego. There is an increased interest in this now especially as the war crisis has caused some of the people to sit up and see a good opprotunity.

I saw Mr.Fischer of the Pac.Products Company on the 3rd and he says that theyvare still trying to get a land location and so far have done nothing about the machinery other than to tie up the cutter that Loman had.

Also I saw Mr.Perkins of Seattle and had a talk with him about his company in Seattle taking over the interests of the Pacific Kelp Mulch Co. I have not heard from either him or the Pac.K.M.Co. since he was here and so do not know how he came out.

Yesterday I had a 2½ hr.talk with Mr.Hannigan of San Francisco who is the promotor of the Kelp Products Co. He came out hhre with a local man Mr.Campbell who was seeking as investment in the concern. The proposition that they are putting out is as follows:

Artz and Blandenberg,chemists and civil engineers have or claim to have a patent or patents pending by means of which they claim that they can acidulate the kelp after it is brought in and then press out about 90% of the water by means of a press such as is used in the pineapple industry -in the Hawaiian Islands. That their process admits of the juices being pressed out then the remainder is taken and placed in a rotary drier and the kelp then will not clog up the drier. Then it is taeken out and ground in a worm cutter. The resulting material then to be sold as a fertilizer while the

VALLEY CONGRESS LINEN BOND 1903

is then put through a series of evapotating pans and crystalized out by a rpocess sojewhat similar to the rocess used in the beet sugar industry as far as I could find out. Then this would be crystalized finally in a vacuum pan which would give the purs KCl. For their claimed patents they ask 40 000 shares of an issue of 200 000 shares. The promotor, Mr. Herrigan then is to recieve 20% of the sale of stock 250000 shares at .85 and 50000 at 1. There to be no overhead expense until the actual work is started. this would mean then that there would be 85000 shares left in the tressury. the men who put up the money then would really be getting less than 60¢ on their-dollar invested. Nothing more than a laboratory test has been made of the process so one does not know how that process will work or how expensive a process it is to work so the investors have very little to j dge upon. I suggested to Mr. Campbell that if ai were going into a busi - ness which had an element of doubt in it that I would put up enough for a trial as all of the work can be done except the acidulating process and this end of it could be done for about $800. Then he and his associates would know that where they were located and couod judge better as to the possibilities of the process.

Hannigan showed where he expected the plant near La Playa and proposed putting out a single line of piling and then decking this and calling it a wharf. He then proposes to build or buy a 100 ton barge put a cutter on this and gather up his kelp. He will propell the barge by a couple of small gasoline engines. He figures that he can cut and land for 28¢ less depretiation and accident. the cutting and landing apparatus would cost about $21 000 while his machinery for drying and crystalizing would cost about 15 000. However the cost of the patent process was not shown.

I don't like the way that he is working as his first move was to see what interest I should like to take in his proposition, then latter on he

he suggested in his remarks that he might drop the others in the deal unless the valus of their patents were worth the 40 000 shares. As he is supposedly representing these chemists and civil engineers,he looked a little crooked to me.

I spoke to him about the circulars that he sent out and told him that the circulars impressed me as being the means for a stock selling deal and not a legitimate business proposition particularly as there were cliams made that at the time were not substantiated by the facts contained. That rather got him under the ribs and he did some rather tall explaining as Mr.Campbell was present at the time. I have my doubts as to the proposition and think that the whole concern will bear watching. I tried to warn Mr.Campbell during the talk what to look out for so that he and his associates would not be taken in by a poor deal. Probably you are informed as to possible patents applied for and so can judge as to the merits of the system.

Now as to work here. Mr.E.W.Scripps made an offer the other day that I am looking into namely that if I could get a test run made in a vacuum rotary that is now in use in San Diego,that he would bear the expense of the run if I would get him the product of the run. This would mean that I would be able to put on the experiment that we were figuring on for the last anticipated appropriation. I went into San Diego and looked over the rotary alst week and found that the drier would only handle about 15 tons per day in 3 8 hr.shifts. This makes the deal a poor one as the rotary cost about 10 000 and the method is too expensive. The only good that I could get out of the experiment would be the knowledge gained as to the action of the kelp in the drier. I shall try to get the

experiment donn though for that knowledge. That will be a great step forward as to the working poesibilities of the kelp. There is no ordiaary rotary drier here that can be used although there is that remaining hope that one might get one of the large kilns at the Riverside Cement Plant and use it for a run by taking the kelp there.

I will go to Los ngeles abo t the 4th or 5th of Sept. and go over the ground there carefully and see how things are going on but I suspect tha they are not progressing very rapidly form all that I can hear.

How is Turp and his work? What effect will the War have upon the ultimate fertilizer supply? I see that KCl is on the jump and there ought to be a big demand for a product fromthe kelp.

ith best wishes to you.

Yours truly

3207 Nineteenth Street, N. W.

Washington, D. C.

Mr. W . C. Crandall,

La Jolla, California.

Dear Sir:

Your personal letter to Dr. Cameron, under date of August 23rd, has been formarded to his home in his absence from the city. Dr. Cameron is at present is Canada and owing to his constant moving about, I do not consider it wise to forward him any mail. I expect him to return about the middle of next week however, at which time your letter shall be called to his immediate attention.

Yours very truly,

Virginia Newton Cameron

August 30, 1914.

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.
FKC/D

September 3, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
La Jolla, Calif.

Dear Crandall:

I have just dictated an official letter. I am very much interested indeed in what you write me about Mr. Scripps's attitude toward the kelp matter. It is a bully good chance. I am working hard on the proposition and I think will be in an excellent position by the time I reach Los Angeles to go over the matter with you in detail, and then if it looks good, we can see Mr. Scripps. I have got a hard job cut out for me in the next week; I have got to prepare a report on the utilization of hydro-electric power in the fertilizer industry, to be ready before I leave Washington.

I am going out to the Dalles on the Columbia, stopping en route at Keokuk, Salt Lake City and Montpelier, Idaho. It will probably be the 23d or 24th before I can make Los Angeles, although I will hurry matters as much as I can with due regard to the interests of the work I am on, and will notify you exactly when to look

TKC/D

September 8, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
La Jolla, Calif.

Dear Crandall:

I have just dictated an official letter. I am very much interested indeed in what you write me about Mr. Scripps's attitude toward the kelp matter. It is a bully good chance. I am working hard on the proposition and I think will be in an excellent position by the time I reach Los Angeles to go over the matter with you in detail, and then if it looks good, we can see Mr. Scripps. I have got a hard job cut out for me in the next week; I have got to prepare a report on the utilization of hydro-electric power in the fertilizer industry, to be ready before I leave Washington.

I am going out to the Dalles of the Columbia, stopping en route at Keokuk, Salt Lake City and Montpelier, Idaho. It will probably be the 23d or 24th before I can make Los Angeles, although I will hurry matters as much as I can with due regard to the interests of the work I am on, and will notify you exactly when to look

for me. I think we had better get together as soon as we can after my arrival in Los Angeles, and it might be well for you to come up there a day or two ahead so as to have the latest dope on kelp to give me as soon as possible. We will then get busy and work out what looks practicable and put it up to Scripps.

Sincerely yours,

FRANK K. CAMERON,

~~In Charge.~~

ADDRESS ALL COMMUNICATIONS TO
"CHIEF, BUREAU OF SOILS."

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
WASHINGTON, D. C.

PHYSICAL AND CHEMICAL INVESTIGATIONS.

FKC/D

September 3, 1914.

Prof. W. C. Crandall,
Scripps Biological Institute,
La Jolla, Calif.

Dear Crandall:

I have just returned from a trip to Canada on official business and find your letter of the 23d, which I have read with a great deal of interest.

It is my present expectation to leave here about the 10th and to be in San Diego or Los Angeles in about three weeks. Of course I will advise you more definitely a little later on, and when I see you will go over in detail with you the interesting matters you have brought up.

Sincerely yours,

FRANK K. CAMERON,
In Charge.

Letter just received from somebody in Los Angeles says Am. Pot. Co. is producing a ton a day of KCl and will shortly produce 5 tons daily. Is this so, or just the same old talk? Do you know the facts officially.

F.K.C.

EXO/D

September 3, 1914.

Prof. . G. Crandall.
Scripps Biological Institute,
La Jolla, Calif.

Dear Crandall:

I have just returned from a trip to Canada on official business and find your letter of the 22d, which I have read with a great deal of interest.

It is my present expectation to leave here about the 20th and to be in San Diego or Los Angeles in about three weeks. Of course I will advise you more definitely a little later on, and when I see you will go over in detail with you the interesting matters you have brought up.

Sincerely yours,

In Charge.

Whittier, Cal
Sept. 6th 1914.

Dr. Frank K. Cameron
Washington D.C.

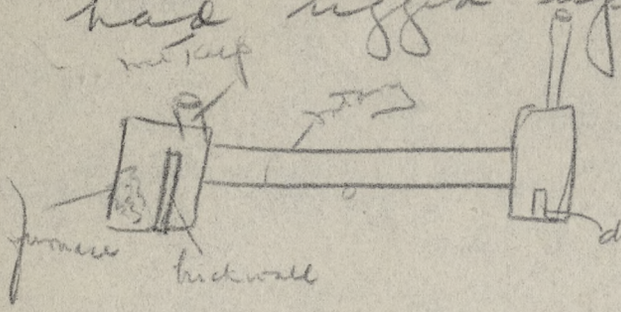
My dear Dr. Cameron:-

I will make a report on work done to date and then give the rest later on. Last Monday I sent two dried specimens, one Pelagophycus porra - one Macrocystis pyrifera. These should be handled with care if they are to be used as specimens.

Thursday night I came to Los Angeles on the Owl and on Friday morning I met Messrs Fischer Metz & Short of the Pacific Products Co. and at 7 A.M. but I found it would not be necessary to leave for the experiment at Playa del Rey until 1 P.M. so I went on and saw Mr. James of the American Potash Co. Mr. James told me that Mr. McAlear was with them only a month and that they were now working by means of their brand. There is no General superintendent. They have put in a rotary drum but that of

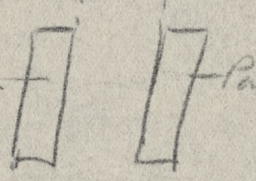
was not working due to poor construction of this furnace but that it would be working next Thursday morning so I am staying over to see this done work. The drier is a temporary one and is about 4 ft in diameter twelve feet long. It does the work I claim in about 45 min. and they can handle some 40 tons - 24 hrs. work. So much for them. Just as I left I saw Brandt but Brandt was in poor shape to talk as he had been to a dance the night before that was evidently some dance. About 11 o'clock I started out to find the P. K. M. Co. They had moved, left no address but were supposedly in the Story Bldg. 6th & Borden R 220. I went to the Story Bldg & nobody in the Office knew about them and I figured to be out. I then went up to the Pacific Products Co. and Mr. Fisher, Mr. Clark & myself then went down to Dick Lowman's place where Mr. Hood

had rigged up a hand rotary drier



This drier was about 18 in long and 16 in. in diam. There was hand apparatus to keep the rotary revolving. Oil was used for the flame and the flames were kept from hitting drier by means of an intervening wall of brick. After getting the drier heated we put about 25 lbs finely cut weed into the flame or furnace end of the drier. This kept then tumbled down the drier because of a 4 in slant. Also the kelp was kept moving by means of 6 longitudinal 2" angle iron that kept the kelp separated. (angle iron rotary). The kelp went through drier in about 20. 25 min. and we finished the 25 lbs in about 45 - 50 min. I am sending some of the sample home. One noticeable fact is that most of the salts effloresced in the hot heat. This was a surprise to me. Also there was no balling up of the kelp. Mr. Shoop kindly took out a brick from the flue end and I watched the kelp from the time it started to next

kelp ~~cut~~ until it came out as dried kelp. The whole thing moved to perfection if the chemical analysis still shows the products present. After the demonstration we went to see the latest cutter — Lawton. This is mighty similar to the one Timins patented. Only one wanted different & that was the Timins to have adjustable pattern in front of the cutter otherwise the two are about the same.



Cutter is 10 ft. wide and after same pattern as the old one. The the draper has belly cross bars and no cutting, otherwise the same. The draper leads to the grinder. This is simply a lawn mower with the exception that the bars are parallel & the longitudinal axis inclined at an angle. So there seemed to be all of the elements of success present to put through a good plant. Yesterday I

went over to see them again to see how the Company stood. They are practically up against it.

100000 shares — 67500 already issued

Treasury stock now 32,500.

From at present $5000 in debt & no tangible assets other than the experiment that I have as Lakeman claims to own the cutter.

To start they will have to put up 25,000 - 15,000 for plant + 10,000 for operating expenses. They have him negotiating for five months for the 25,000 and worked as about to put them on the rocks. I went over the whole matter carefully and showed him where he was at. He saw the point and wanted to think things over and to see me again on Tuesday. This Company is when it could do something but I showed him that for business men to consider their proposition

that he and his associates would have to personally take a goodly part of these stock holdings so that our putting in money would see more value for his money invested. That hurt of course but I showed him that simply holding a controlling interest in a dead concern was worthless while some dividend paying stock of even amount would be of value. So I can see where it may be possible now for this firm to now do something for them take my meaning now. The 675 shares is really nothing but hedge stuff from that old Whites Point project and that was worthless long ago. — after I got through with a hard number of hours work I went over to see Bernstein at 220 Stock Bldg as I found that he was conducting the P. K. M. Co business. Have some more

Empires were wrecked
Joe Shinn Musselman and Deeks were
out of the firm and their interests had been
bought up by some new men and the
company reorganized free of debt as follows.

Col. W. J. Perkins -	Seattle	President
Mr W. H. Newman	Los Angeles -	V. P.
Gen. Bonstein	" "	Treas.
E. C. Hutchinson	" "	Sec.
J. G. Stevens.	Englewood	Director
J. M. Atwell	Los Angeles	"
J. F. Poole	" "	"

Still has case on Terminal island
and an grinding kelp (i.e. about 40 tons
they had on hand.

Stock - 500 000 shares.
" Issued 94,500. from old firm with
firm stock holders had to go through
reorganization.

Perkins is to finance proposition selling
stock at 35¢ netting company 25¢.
(Pretty fair selling profit for Perkins)

Associated in an indefinite sort of way is Mr. J. G. Armstrong — of New York — nephew of Armstrong of Tapeka & sales agent of Sea-Medal Rifle & Engine Co. Government.

Mr. W. J. Hyer is factory superintendent.

I have an engagement for tomorrow morning to meet the directorate and have a talk with them.

This has certainly been a strenuous trip and my two holidays are certainly being used to good advantage. Glen next week the Keep Products Co is to give a demonstration & some prospective buyers in San Diego & I am invited to be present.

There is enough doing out here now to be worth a trip on your part, I should say and you ought to have a vacation now for a little rest.

Yours sincerely,

W C Crandall

CHAS. METZ, PRESIDENT

PAUL S. SHOAFF, ~~VICE-PRESIDENT~~
CHEMICAL ENGINEER

W. FRANK FISHER, SEC.-TREAS.

Pacific Products Company

INCORPORATED

MANUFACTURERS OF
"Paprora Brand"
KELP MEAL FERTILIZER
AND KELP PRODUCTS

PLANT AND LABORATORY
LONG BEACH HARBOR

OFFICE
521 BROCKMAN BUILDING
PHONE MAIN 1287

LOS ANGELES, CAL., Sept. 13, 1914.

Capt. W. C. Crandall,
La Jolla, Cal.

Dear Sir:-

I believe Mr. Fisher gave you several copies of the Company's prospectus in which certain corrections had not been made.

I enclose a copy with corrections indicated on page 8. The matter is of little material importance at this time, but we should appreciate your making the change in any copies you may have.

Hoping to have the pleasure of seeing you again, soon, I remain,

Yours very truly,

Paul S. Shoaff.

Sept. 14 1914.

Dr. Frank K. Cameron,

Washington, D.C.

My dear Dr. Cameron:

Your letter telling of your possible visit just received and it was very welcome as I have been feeling rather psss imistic about the present actions of the various kelp companies and have felt thatthey were more in tye need of a wet-nurse than anything else that I could think of. I returned last night from Los Angeles after a mighty strenuous time and I hope that I was able to knock a few grins of common hard sense into the brains of some of the foolish people. To resume and amplify my report ofthe 6th:

On Monday A.M. I met with the directors ofthe P.K.M.Co. together with Joe Shiner. Shiner did most of the talking for some time and evaded successfully my questions as t the actual owernership of the cutting barge and harvester as well as the 90ton barge that Dick Lowman has in his possession at the present time. In fact the P.K.M.Co. know nothing more than what Shiner has told them and I got htem to thinking about finding out what theywere up to and why. Shiner was proposing that they bale the wet kelp a d putthat out on t market but after he had gone, I showed them that it would be better for them to dry the kelp and not try to have the farmer send out for wet kelp upon which he would have to put up a matter of freight for 85% of the weight in water. So I was able to stop any proposition in that line. A present they are in the air, seemingly dependent upon some supposed efforts of this man Perkins and in his case I know that he personnally does not know about kelp. Also Armsrong is indirectly assosciated with them and the anticipate something from him but they are not up to date on method even in their plans as their drying plqnt is really a joke. I talked to this outfit until I felt that the game

of helping these fellows was all lost time as all of the men were new except Bernstein and I had to answer all the usual fool questions several times and then their knowledge of chemistry was so shallow that I had arrived nowhere when I had gotten through.

Then I had another go with the Pacific Products Co. about getting an idea as to whatthey were up to. They are going to the wall as fast as the Lord will letthem and I don't know that anything can be done to save them. They are now entertaining the thought of loosening up on their issues stock and trying to give their stock holders sojething rather than an interest in an old eead horse as all of their issued stock is reaaly stock issued against the joke of an experimantal plant that we saw down at White's Point when you were out here and reaaly it is an outrage for that old plant to eat up 68½% o t e capital of a real going plant. However they need a bit of real money as t thye are now $5000.00 in the hole and no visible assets as they own no machinery and have a doubtful option upon te Lowman harvester for cutting. They then are on the right track so far as drying is concerned but if they muddle thier opportunity as they muddled things in the past, there is no real hope for them.

Yesterday I went to Longbeach and saw the workings of the American Potas Co. Mr. Tanner went down with me and we weny over the plant very carefully. I believe that Mr. Tanner is a very honest man and with a little careful guidance will bring that company out somewhere. Mr. Oppenheimer is at present the chemist and he explained what they were doing. First they are putting up a harvester. The harvester if really a fac simile of the first cutter thar worked for the P.K.M.Co. It is similar in every way so far as I could s from the unfinished machine. That method is now well improved and they are simply copying what Wilson was able to get from seeing the other cutter work or I am awfully mistaken. The earmarks of a practiaal copy are every-

where in sight. I then sawthe rest of the plant. The kelp is brought in onto a platform and then put through a poor cutter that cuts the kelp into 6-8 inch lenghts. It then does by means of a chain carrier into the rotary drier which is about 16' long 4' in diameter. This is a simple drier that has a fan attachment for drawing the vapors and smoke off. It is a home made affair but Mr. Oppenheimer says that it will handle 40 tons of wet kelp per day. From this rotary which is out in front the kelp is taken by means of a car to the back of the old laboratory building or exhibition plant, themce across a new room built on behind and then it is dumped into a kiln where is charred by means of oil flame the flame being sent down through the mass instead of having it come up through. Then the char is dropped into a car and taken outside and shoveled up into and through a window into a mixing vat where it iswell stirred and then it is put into lixiviators and water put with it and the salts are then lixiviated out. The liquor is then pumped off and taken to the open evaporating pans and there it is evaporated to a given density and then pumped over to some other pans where it is allowed to c crystalize. The resulting mixture is again pumped off to another set of ev evaporating pans and againn concentrated. This is done three times and the resulting mixture is then put aside for the getting of iodine out of the liquid. This plant at present can handle with hteri present kiln about ½ ton o KCl per day or 24 tons of wet kelp. The usual price of KCl, I believe is $50.00 per ton. On this basis they can trun out $75.00 per day of KCl. Their cost figures are as follows: Cutting 30¢ per wet ton: labor in factory end $37.50 per day. Oil cost unknown. They were using 75 gals. per hour but I am not sure that they are using that much at this time. They are dickering with some Joliet Match concern at this time and these people will put in $150 000 if the KCl will turn out as a possible source for their needs.

They have sent out 65# of their salts to the Match Co. to find out whether this will work or not. They have nt been turning out any ton a day as yet and the rotary will not be in actual working shape for several days yet. I was much dissappointed in that I waited tosee this working and was unable to more than see the unfinished plant. However the are trying to get the product out and they have a few salts about the bylding. They are paying $10.00 a day for a foreman and $10.00 a day for their chemist. Where the office force both in Los Angeles and in Longbeach get off I don't know. However the figures that I have quoted relate only to the little experimental plant and do not give relative values for a plant handling a couple of hundred tons per day as many of the items would be more than cut in two. I can say that they are really at work and that there is a possible future for them.

Now about the harvester mixup:

Ennis has a patent 1 080 144 Dec. 2 1913 and his cutter is as much like the one now lying down at Lowman's place as it would be possible for two things to be alike. Ennis was around at the time that the Lowman machine was built and it looks like he at least took his ideas from that machine. Now Lowman claims the harvester andgrinder: also the P.K.M.Co. claim that they own this particular harvester and grinder except for certain labor that Lowman did upon it. They claim that the machinery is theirs etc. They do admit that the pontoons are Lowman's however. Now Ennis has never built a harvester and has a patent, Lowman, Shiner and Seeman together built a harvester that is satisfactory and have no patent. Lowman is now supposedly subsidized together with hiw machine by another company and to be working with them in getting a rotary starrted. Still another company is putting up another harvester that has some of the principles of the Ennis patent. Now Ennis has a patent that really covers a couple of pontoons, a McCormick harvesting ~~sickle~~ sickle, and a bar belt. He has a method rather than anything

else. Yet he will be able to tie up the kelp industry if he wants to with demands for royalties etc. It would be well to look into the rights of the case as there will undoubtedly be some conflict along this line and if we can get thingsgoing we don't want a thing of this kind to come into the game.

The Kelp Products Co. of San Francisco Cal are to give a demonstration of their plant and method here about the end of next week that they may interest some local capital in their scheme. I will report on this as soon as the demonstration comes off.

I am ot of vouchers for disbursements or reimbursement blanks for Traveling and Field Expenses. Also I am rather in doubt as to the new demands as to filling out the blanks especially as regards sub-vouchers as I have received no definite instructions.

Come out and serve as wet nurse for a while and find oot what a pleasant job it is. I have been taking a good fifth of my time for the last two months just answering questions for the good public.

Oppenheimer wanted to be remembered to Turrentine.

At a separate time give Turp my regards also.

Yours truly,

W. C. Bauduce

Sept.28th 1914.

Dr.Fank K.Cameron,

Los Angeles,Cal.

My dear Dr.Cameron:

It never rains but it pours,it seems. After getting y ur letter to meet you in Los Angeles on Thursday and after making arrangements to do so,I got a telegram to meet the University Comptroller here on Thursday morning and I see no way in which I can escape the engagement with him as I have to get the matter of the State Appropriation fixed up with him at this time for our next t two year s allowance. As it has come out,I don't see how I can meet you before Friday morning in Los Angeles and will telegraph you if I have or can change my plans. There is suddenly more work piled up than I had thought possible during my supposedly slack season.

In Los Angelesthere is one place that I wish that you would go on Thursday and that is to the American Potask Co. 1205 Marsh-Strong Bldg.,Cor.9th and ~~Sprpi~~ Spring. I want to go with you down to their plant at Longbeach but I would li like for you to have a talk with Tanner on the manner in which that they are reorganizing.

Also I should like for you to go to the Brockman Bldg. and see Fischer and have a talk with him. 7th and a block east of Grand.

Hope that we can make it so that you can be here over Sunday out at the Station where we can go over things quietly and carefully.

Cuss a bit for me for the way things have piled up unexpectedly.

Yours truly,

A. E. Chandler

Sept. 20th 1926.

Dr. Frank K. Cameron,

Los Angeles, Cal.

My dear Dr. Cameron:

It never rains but it pours, it seems. After getting y re letter to meet you in Los Angeles on Thursday and after making arrangements to do so, I got a telegram to meet the University Comptroller here on Thursday morning and I see no way in which I can escape the engagement with him as I have to get the matter of the State appropriation fixed up with him at this time for our next two year s allowance. As it has come out, I don't see how I can meet you before my plans. There is an awful lot more work piled up than I had thought possible during my unpleasantly short vacation.

In Los Angeles there is one place that I wish that you would go on Thursday and that is to the American Potash Co. 1805 Merch-Strong Bldg., Cor. 7th and Spring. I want to go with you down to their plant at Longbeach but I would like for you to have a talk with Cannon on the manner in which they are reorganizing.

Also I should like for you to go to the Broadway Bldg. and see Proctor and have a talk with him. 7th and a block east of Grand.

Hope that we can make it so that you can be here over Sunday out at the Station where we can go over things quietly and carefully.

Guess a bit for me for the way things have piled up unexpectedly.

Yours truly.

Oct.9th 1914

Dr.Frank K.Cameron,

Washington,D.C.

My dear Dr.Cameron:

Enclosed find the ~~copy~~ proof for the kelp work.

Table XV is a stunner for me as this one experiment was done with the greatest of care and up until the time that the samples were sent I have every reason to believe that the contents were not lost. I can offer only one solution for such an apparent discrepancy and that is that these samples must have been subjected to a leaching process while en route either in a wreck or something of that kind as I don't believe that they went out of here except under the best of care as I had a definite end in view while we were doing the experiment and more than ordinary care was taken.

Q. The ~~Pac~~ Coronado Company really sold some superphosphate but no potash salts as we afterwards found out.

2-2 The C.C.C. and the Pacific Kelp company were amalgamated into the American Potash Company and as this company is designated on16KD it seems that some mention should have been made of this in speaking of the two companies on 17KD.

In view of the fact that we have about two years additional information to go on, I think that we could write a much improved article all the way through but according to the facts that we had at the time, they work shows that we were near the actual conditions of that time. I should like to see a supplementary report containing the results of the various experiments that we have done during the last two years as they ought to add a good deal of important matter to facts as shown in the report.

Yours truly, W. O. Crandall

Oct.19th 1914.

Dr.Frank K.Cameron,

Washington,D.C.

My dear Dr.Cameron:

Can you send out the following data as it seems to be impossible to get hold of it here:

Ammonium Sulphate Price for 1910-11-12-13-14 at principal Eastern Pts.

Potassium Sulphate " " " " " " .

Potassium Chloride " " " " " " .

What is the possible market for HCl in New Orleans?

Things look well here with the change that it seems to be best to run the experimental ovens here on the Station grounds to do away with suspicion and to try out and see whether there will be any changes neces ary before beginning in a larger plant. In fact to put up an entire set large enough to try out your lan in its entirety.

Yours sincerely,

WESTERN LITHO. CO. SAN DIEGO.

ABSOLUTELY FIREPROOF
THE SAN DIEGO HOTEL
EUROPEAN PLAN ON BROADWAY LARGE SAMPLE ROOMS

E.D. MILLER SAM S. PORTER
PROPRIETORS.

San Diego, Calif Oct. 20th. 1914. 191

"KELP"

Prof. Crandall,
Biological Station,
La Jolla, Cal.

Dear Sir;

Having completed my investigation on the "KELP" industry possible along the coast of California and with intentions of having same go forward at once, I would appreciate a line from you regarding your opinion upon said industry.

I realize you gave me same when at your office recently but I would certainly appreciate very much to have you write me to that effect if you can so do.

As you know Mr. Crandall a line from you personally will do more than my talking an hour when the point arises as to the feasibility of locating a plant here, for that reason I would appreciate a line regarding the above, thanking you for information already given me and hoping to hear from you, I beg to remain

Very truly yours,

Jas. E. Sellers C.E.

J.E.S/A.C.

San Diego Hotel.

BRUNSWIG DRUG CO.
WHOLESALE DRUGGISTS
LOS ANGELES

CABLE ADDRESS "BRUNSWIGCO"
CODES USED A.B.C. 5TH EDITION, LIEBERS, WESTERN UNION

BRANCH AT SAN DIEGO
NEW YORK OFFICE
16 PLATT ST.

ADDRESS REPLY TO DEPARTMENT B
REFER TO NO. AES/K

Strahlmann-Mayer Drug Co.,
San Diego, Calif.

Oct. 28th, 1914.

Gentlemen:

We have been requested by our San Diego house to give you the relative prices for the last three years on

	1912.	1913.	1914.
Sulphate of Potash	.05½	.05½	.06
Ammonium Sulphate	.06¼	.06¼	.07
Potash Chlorate	.13½	.13½	.25

We trust this is the information you desire, and remain,

Yours truly,

BRUNSWIG DRUG CO.

By Stone

SUBJECT:

STATE OF OREGON

OFFICE OF THE
STATE ENGINEER

JOHN H. LEWIS, State Engineer
President of the State Water Board
Secretary of the Desert Land Board
PERCY A. CUPPER
Assistant State Engineer

SALEM, OREGON November 5, 1914.

Mr. W. C. Crandall,
Biologist of the Marine Biological Association,
La Jolla, California.

Dear Sir:

The State of Oregon, in cooperation with the United States, has expended $30,000 in the investigation of a 470 horsepower plant in the Columbia River near The Dalles, with 800,000 horsepower available 9 months in the year. It is proposed to use this enormous power, which can be developed very cheaply, in making fertilizer. Nitrogen can be secured from the air, superphosphate will be made in the electric furnace, using phosphate rocks from Idaho; potash will be secured from kelp along the Pacific Coast. If this scheme works out, there will be a large market for potash obtained from kelp.

We are very anxious to get our laws, relating to kelp, adjusted so as to protect this industry. I am writing to know what, if any, legislation has been enacted by California so as to protect development by private capital. Can you give me any suggestions as to what you think is needed along this line.

Can you give me any idea as to the cost of producing potash from kelp in comparison with the cost of production of potash in Germany? Can the kelp be harvested annually without injuring the plant? Have you in mind any legislation to protect the kelp groves? Do you believe that it would be wise to turn over all of the kelp in Oregon, say to one company under lease on the royalty basis and to be harvested under regulations prescribed by the State for the preservation of the plant?

It appears to me that the State should go into partnership with private capital in handling the fertilizer business, dealing only with one company and this company encouraged to dominate the markets of the world and to divide the profits above a certain point with the State, somewhat after the plan of the German Potash Trust. Can you refer me to any published information with reference to this plan? Could you give me your views respecting the same. If the kelp groves are farmed out to small independent competing firms, we will get nowhere in dominating the world's markets. Have you one

or two pictures showing kelp beds or the manufacture of potash therefrom which would make good cuts in a report? If you have any such which can be spared kindly forward bill.

We are laboring somewhat in the dark with respect to these new industries and I am writing you for the reason that I know you have given this subject considerable thought and are recognized as an authority.

Thanking you for any assistance which you can give us in this matter, I am

Very respectfully,

John H. Lewis.

John H. Lewis,
State Engineer.

JHL-W

Nov.10th 1914.

Mr.John H.Lewis,

Salem,Oregon.

My dear Mr.Lewis:

Your letter of the 5th is at hand. The Bureau f Soils is at present getting out a bulletin that will take up the "Kelp" in its entirety and this will be out in a very short time as it is now in the h hands of the printers and ready for the final run. In vieu of this and on account of the rulings of the Department,I will ask you to confer directly with the "Chief, Bureau of Soils,Washington D.C. There is complete data to be had there and I am sure that you will get all of the information that you want from this new bulletin.

As regards the laws on kelp. There are no laws in the State of California at the present time.

For information concerning the partnership of State and private capital,I should refer you to the Extension Bureau of the Univ.of Cal.,Berkeley,Cal. They are handling just such problems in m much of their work. Possibly it would be wellto address Dr.I.W.Howerth, Head of the Extension Bureau,Berkeley,Cal.,directly.

As regarding my ideas of Kelp Harvesting,you will find those in the Federal Report.

If you cannot get what you want from the Bureau in the way of information because of its lack of clearness,I will be glad to take up and explain the dense parts.

Yours truly,

W C Blasdale

Nov. 18th 1914.

Dr.Frank K.Cameron,

Washington,D.C.

My dear Dr.Cameron:

Since your visit here ther have been a few develppments in the kelp situation.

Yesterday there were three men out ,namely Mr.Webb,Mr.Smith and Mr.Brunot from San Diego and they are in touch with a Mr.Martin who is a so called Chemistry Merchant of Boston and this man is anxious to put up a plant for general chemical purposes and amongst other things he wants to tackle the kelp proposition if it looks good to him. Mr.Webb claims that he has an option on the beach opposite Tent City from Mr. Spreckels that he can collect the kelp from the beach and have his plant on the Strand below Tent City. He proposes to cut kelp and let it float in and then catch it up in windrows and let it dry for a time and then catc it on a cable that will carry about two or three tons and then carry it to a series of three ovens and then burn and the results he will take off and catch the by-products and then load one oven and have it burn,then burn the second and it will dry the third etc and so on go through a series of actions that will always have one drying owen,one burning oven and one that is loading. These he will use in connection with a series of concrete platforms so as not to loose the ~~kelp~~ potash as it's given off. The later was the result of my telling him that the kelp would lose a big proportion of the potash if dried on the beach. Simply another afternoon given up to talk,I suspect. The men involved though,know some chemistry and som engineering. Doubt that their man Martin will do anything.

Proposition #2. I have a card bearing the compliments of William J.Bell

J.Bell 1134-35 L.A.Investment Bldg,L.A.Cal. Mr.Bell sends a phamplet t that perports to be the output of a new company namely the "Columbia Chemical Co." This company has offices in the office of Mr.Bell. The phamplet simply takes up the matter of kelp in general and states that addi tional information may be received from the company's office regarding the manufacturing etc. for the mutual profit of all parties concerned. This will undoubtedly be a matter for the good public to gave an opportunity once more to give its sheckels over to a designing firm. Bell has al-ready shown himself to be a fraud in that he sold his shares in the Amer. Potash Co. after he felt that the shares were practically worthless. He got out without loss at that time altho with no great gain. However his proposition of bringing another stock company into the field should be watch ed with a good deal of care. His past record is against him. From his folder,I am sure that he has not started anything at the present time and that it would be foolish for me to go to L.A. just now and see what he is up to as it would just be a matter of matching wits and nothing gained.

The Kelp Products Company is locating at Roseville and have at this time bought the land or else taken a lease upon it. From appearances they will try to do work on a small scale for the present. Other kelp matters seem to be waiting developments at the present time.

Yours sinderely,

Nov.18th 1914.

Dr.Frank K.Cameron,

Washinfton,D.C.

My dear Dr.Cameron:

Things are moving along slowly here. At present Iam putting up the new kiln a nd rebuilding a part of the road. I was in tomsee about crude oil and I can get it delivered to the plant for 1.20 per barrel. Now instead of putting in an expensive tank,I can dig a sump and put the oil in that and then pump to a small barrel or two barrel tank and use this for the feeding. This will be much cheaper than going to the expense of putting up a tank etc. As the oil is a good deal cheaper than I had figured,I can do this at an actual saving.

I will beginn to pull in some kelp in a few days. Mr.Scripps suggests that there are no rules that he knows of that cannot be br ken and so he and I are working on Billy Kettner to see if we can't get you a leave for six months even tho there may be a necessity for the departments use of your coming out and carrying on the work in a commercial way. This would mean a good deal to the department and as it has this opportunity without cost to itself,it may be possible to break down one of the department rules. I know that this would really satisfy the Mrs. better and so I suspect yourself if it could be arranged I can put it up to Billy in such a way that he will see the need of it and then take the matter up directly with Sec.Huston and see what he should do.

Everything is looking in mighty good shape here and I see no reason,why I should not have things going by the middle of next week.

Bell is out with another folder "Made in America."

Three men by the names of Webb,Smith, and Brunot are figuring on a plant near Tent City Coronado. I talked with them yesterday afternoon for abo t

U

Nov.21st 1914.

Hon.William Kettner,

Washington,D.C.

My dear Mr.Kettner:

The situation of the Kelp Industry is not in as good a way as it should be due to the fact that sufficient work along lines of investigation have not been pursued by efficient and qualified men and the result is that there is money being spent that those investing can in reality expect little returns for,because of that fact. Realizing this condition,I looked around to see if I could not get some one to carry on the work that the Federal Government had been asked to do,namely the examination of the kelp after it had been harvested and means found for its proper treatment.

For this end of the work,I was successful and did obtain the assistance of Mr.E.W.Scripps who offered to place an experimental plant at my disposal, he to assume all of the finacial burdens. However the work could not then be carried on without some chemist with the proper training. For this end of it I naturally turned to Dr.Cameron,Expert in Charge of the Kelp Investigation but found that he would not be available to carry on this experiment even though we had found that the total time necessary would only require his absence from the Department for a period of six months. Now it seems to me that as the government is not willing to appropriate a sum of money for completing work that it has started and as this work is not being properly done by the business interests because of lack of knowledge,that it is only right that we might expect them to allow us the use of a man who may be able to develope the industry if given the opportunity. You realize what it means to the farmers,the shippers, to our home ports and to the interests of our gullible public to have this matter straightened out either that there is

a business opening or else that there is no probability of success in the venture. We do not have more than theoretical knowledge at the present time but we can soon know what the chances are and in this way aid and assist a large group of interested people.

So far as I am concerned I feel that we have a great opportunity for an industry that will be another step in putting us in charge of our own destiny as a nation in that we will have a most important chemical obtainable from our own waters. To do this, I hae secured the man who is willing to put up the money for the experiment and now we ask that you get us the man Cameron for the carrying on of the actual experiment. The sooner we can have him, the better.

Thanking you for your many deeds of kindness in the past and with hopes for your continual success, I am

Very respectfully yours

UNIVERSITY OF WASHINGTON
SEATTLE

BOTANY
THEODORE C. FRYE, PH. D., MORPHOLOGY
GEORGE B. RIGG, PH. D., PHYSIOLOGY
JOHN W. HOTSON, PH. D., PLANT DISEASES

ASSISTANTS
ETHEL BARDELL, M.S.
VINNIE PEASE, B.S.
JESSIE NEIKIRK, B.S.
LOLA EDWARDS, A. B.
MABELL AMIDON, B. S.
HENRY SCHMITZ

BACTERIOLOGY
JOHN WEINZIRL, PH. D., BACTERIOLOGY

ASSISTANT
D. H. NICKSON, B. S., PATHOLOGY

November 27th, 1914.

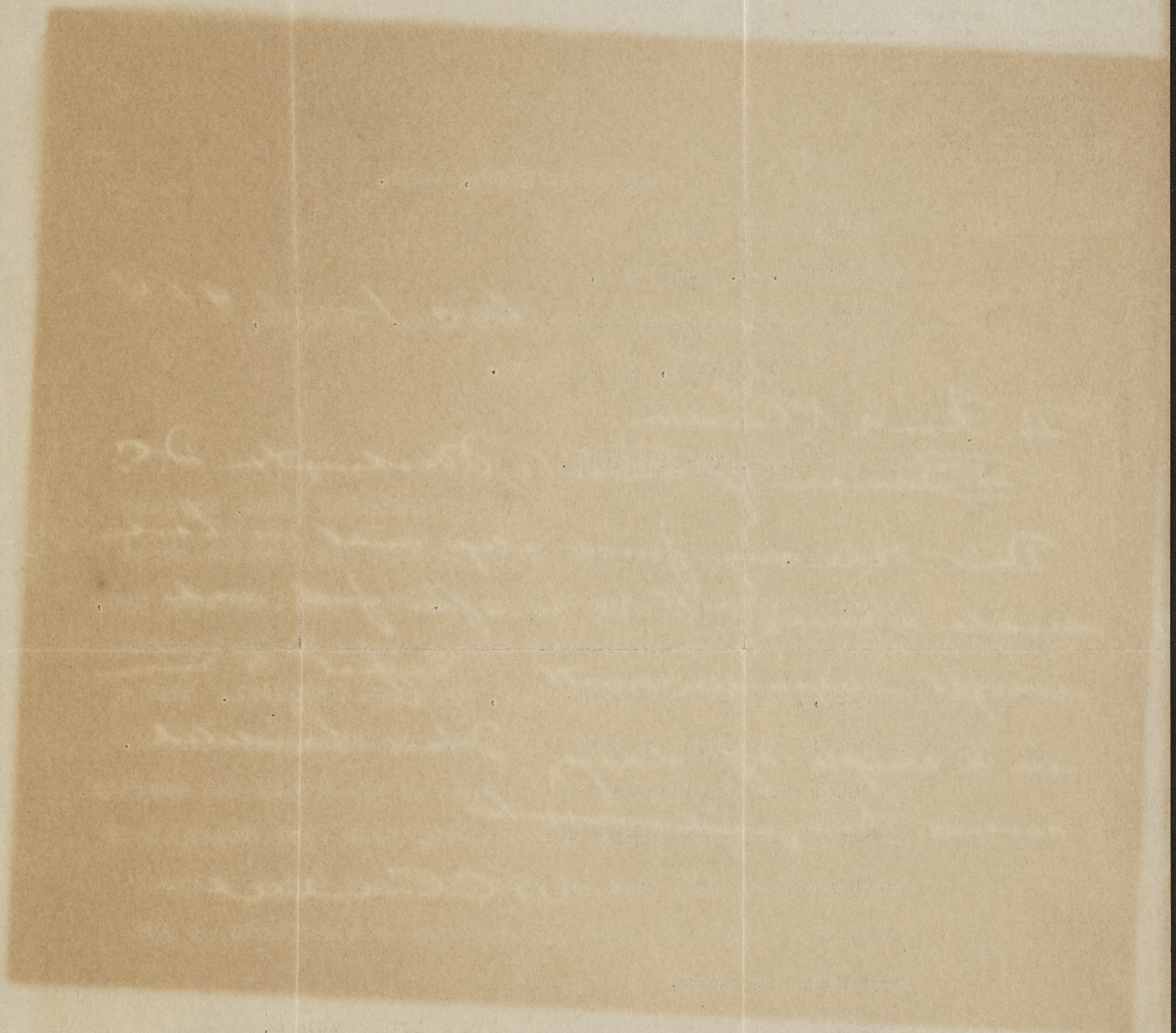
Captain W. C. Crandall,
The Scripps Institution for Biol. Research,
La Jolla, California.

My dear Captain Crandall:

Yours of November 22nd. is just received. I am putting the facts that you mention about kelps together with those that Dr. Frye and I already had, into a paper entitled, "The Size of Kelps on the Pacific Coast" of North America, under the names Frye, Rigg and Crandall. While I was in Chicago, I made tentative arrangements with Dr. Coulter for publishing this paper in the Botanical Gazette. Are these arrangements satisfactory from your standpoint? Just as soon as I can get the paper into shape, I shall send it to you for such alterations or additions as you may wish to make.

Very truly yours,

Geo. B. Rigg.



Form 2289

NIGHT LETTER

THE WESTERN UNION TELEGRAPH COMPANY

INCORPORATED

25,000 OFFICES IN AMERICA — CABLE SERVICE TO ALL THE WORLD

THEO. N. VAIL, PRESIDENT — BELVIDERE BROOKS, GENERAL MANAGER

RECEIVER'S No.	TIME FILED	CHECK

SEND the following **NIGHT LETTER** subject to the terms on back hereof which are hereby agreed to

Dec. 1 — 1914

Dr. Frank K Cameron,
Bureau of Soils, Washington D.C.

Don't take any final step until we have made a run x E. W. is after fuel and weight measurements. Expect to run in a couple of days x Have handled several tons ~~and will be~~

W. C. Crandall

NIGHT LETTER

ALL NIGHT LETTER MESSAGES TAKEN BY THIS COMPANY ARE SUBJECT TO THE FOLLOWING TERMS WHICH ARE HEREBY AGREED TO

The Western Union Telegraph Company will receive not later than midnight **NIGHT LETTERS,** to be transmitted only for delivery on the morning of the next ensuing business day, at rates still lower than its standard night message rates, as follows: the standard day rate for ten words shall be charged for the transmission of fifty words or less, and one-fifth of such standard day rate for ten words shall be charged for each additional ten words or less.

To guard against mistakes or delays, the sender of a message should order it REPEATED, that is, telegraphed back to the originating office for comparison. For this, one-half the unrepeated message rate is charged in addition. Unless otherwise indicated on its face, THIS IS AN UNREPEATED MESSAGE AND PAID FOR AS SUCH, in consideration whereof it is agreed between the sender of the message and this Company as follows:

1. The Company shall not be liable for mistakes or delays in the transmission or delivery, or for non-delivery, of any UNREPEATED message, beyond the amount received for sending the same; nor for mistakes or delays in the transmission or delivery, or for non-delivery of any REPEATED message, beyond fifty times the sum received for sending the same, *unless specially valued;* nor in any case for delays arising from unavoidable interruption in the working of its lines; *nor for errors in cipher or obscure messages.*

2. In any event the Company shall not be liable for damages for any mistakes or delay in the transmission or delivery, or for the non-delivery of this message, whether caused by the negligence of its servants or otherwise, beyond the sum of FIFTY DOLLARS, at which amount this message is hereby valued, unless a greater value is stated in writing hereon at the time the message is offered to the Company for transmission, and an additional sum paid or agreed to be paid based on such value equal to one-tenth of one per cent. thereof.

3. The Company is hereby made the agent of the sender, without liability, to forward this message over the lines of any other Company when necessary to reach its destination.

4. Messages will be delivered free within one-half mile of the Company's office in towns of 5,000 population or less, and within one mile of such office in other cities or towns. Beyond these limits the Company does not undertake to make delivery, but will, without liability, at the sender's request, as his agent and at his expense, endeavor to contract for him for such delivery at a reasonable price.

5. No responsibility attaches to this Company concerning messages until the same are accepted at one of its transmitting offices, and if a message is sent to such office by one of the Company's messengers, he acts for that purpose as the agent of the sender.

6. The Company will not be liable for damages or statutory penalties in any case where the claim is not presented in writing within sixty days after the message is filed with the Company for transmission.

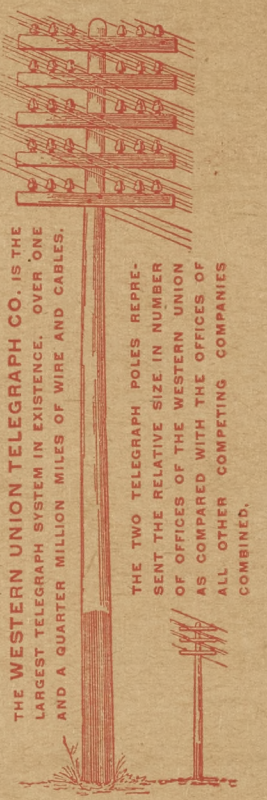
In further consideration of the reduced rate for this special **" NIGHT LETTER "** service, the following special terms are hereby agreed to:

A. **NIGHT LETTERS** may at the option of the Telegraph Company be mailed at destination to the addressees and the Company shall be deemed to have discharged its obligation in such cases with respect to delivery by mailing such **NIGHT LETTERS** at destination, postage prepaid.

B. **NIGHT LETTERS** shall be written in plain English. Code language is not permitted.

7. *No employee of the Company is authorized to vary the foregoing.*

THEO. N. VAIL, PRESIDENT — **BELVIDERE BROOKS, GENERAL MANAGER**


THE WESTERN UNION TELEGRAPH CO. IS THE LARGEST TELEGRAPH SYSTEM IN EXISTENCE. OVER ONE AND A QUARTER MILLION MILES OF WIRE AND CABLES.
THE TWO TELEGRAPH POLES REPRESENT THE RELATIVE SIZE IN NUMBER OF OFFICES OF THE WESTERN UNION AS COMPARED WITH THE OFFICES OF ALL OTHER COMPETING COMPANIES COMBINED.
WESTERN UNION TELEGRAPH COMPANY
ALL COMPETING COMPANIES

MONEY TRANSFERRED BY TELEGRAPH AND CABLE TO ALL THE WORLD

AGRICULTURAL CHEMISTRY
JOHN S. BURD, CHEMIST IN CHARGE

UNIVERSITY OF CALIFORNIA
COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION
BERKELEY

BENJ. IDE WHEELER, PRESIDENT
THOMAS FORSYTH HUNT, DEAN AND DIRECTOR
H. E. VAN NORMAN, VICE-DIRECTOR AND DEAN
UNIVERSITY FARM SCHOOL

December 7,1914.

Mr. W. C. Crandall,
Scripps Marine Biological Station,
La Jolla, California.

My dear Mr. Crandall:-

One of the senior students in Mechanical Engineering, Mr. H.C. Greenwood by name, is interested in designing machinery for harvesting and treating kelp for fertilizing purposes. He is trying to do some really good serious work on the subject and expects to go down south during the Christmas vacation to look the field over. Professor Langille of the Mechanical Engineering Department is assisting him on the problem.

I am anxious to give them the latest information relative to the whereabouts and operations of the kelp companies in Southern California and thought that you probably were still in touch with recent developments. Could you drop me a line giving the present address, of any of the firms that are likely to soon be doing anything on a commercial basis?

We expect to have several publications out on the kelp question in the next few weeks and I shall forward you copies as soon as they appear. Trusting you can oblige me in regard to the information.

Very truly yours,

GRS/P

Guy R. Stewart

THE SCRIPPS INSTITUTION FOR BIOLOGICAL RESEARCH
OF THE
UNIVERSITY OF CALIFORNIA

LOCATED AT LA JOLLA
NEAR
SAN DIEGO, CALIFORNIA

LA JOLLA, CALIFORNIA,

Dec.9th 1914.

Dr.Frank K.Cameron,

Washington,D?C.

My dear Dr.Cameron:

I have arrived at some definite place now and can make report to s ome advantage.

The kiln was completed according to specifications and we were able to attempt to run last Monday. Saturday we found that the burner was not working and Sunday,we found out how to change it so that it would burn. Monday morning I filled the furnace with over 4 tons of kelp and then the fun started as the kelp matted so that there was no draft possible and as a result the flame simply came out the front door and left us without any heat going up through the mass of the kelp. Then came a nasty job of cutting a hole through the back end for a distance of about six feet and getting a piece of iron down to cut off a flue. By hard work we got this done at 10 o'clock Tuesday. Then we commenced to burn. Result was that we burned for 12 hrs. running and that the kelp was burned on the bottom,on top and at the flue end but it was not burned in the center or in the front. It was matted too heavily for the heat to penetrate, as Ralph expressed it, it was like a big roast that burned on the outside and was ra rare in the center. Ralph and I burned until 10 o'clock last night, then I shut down for the night to see whether the kelp would do anything du ring the night. We were up and at work before seven and not d the con- ditions as above. Then we went at it and started her up again. I am stil burning and there is steam coming off but I don't know how much longer it i is goi ng to be before I cna get that mass burnt. So far I have used abou 10 barrels of oil with the prospect of many more. Very evidently the mass method will not work because of the matting of the kelp. The flue

will have to be changed to the front end in order to get better b rning. The kelp will apparently have to be fed in slowly so as not to cut off the draft and to permit the rapid drying of the kelp. At first the kelp weeped a lot but with the hot flame of yesterday this ceased entirely. There is no clinkering so far apparently as I cna poke a poker through to t the bottom without any difficulty. There was a slight clinker formed last night about the burner but this was knocked off and the flame soon destroyed most of theis. I am wondering if the hot flame of the furnace box is not hot enough to volatilize the salts as they fall to the floor of the g grate. This seems very probable to me at the present time. I caught some 20gals. of water from the first weepage. This taste salty but of cour e that is all that I can say concerning it.

At present it is costing about 10 plunks a ton to get the kelp up to the plant and this rather staggers E.W. although he can see that th s is very exorbinant and due to the method of handling. However the fact that the kelp takes such a long time to burn and is using such a great amount of oil rather stumps him. Yesteday as we were talking over the proposition after I showed him your letter, he looked at the furnace and then said that it looked to him as though 60 of the chances were going up in that little experiment on acess count of the fuel costs. Then I asked him as to his feeling concerning the experiment and he said hat he was willing to stay by his agreement but that it must be understood that as the experiment showed that it was too costly that he would not be held to putting up more and more money for costly additions to the experiment Etc. That he was not ready to spend money unless there seemed to be a business man's chance of making money. So there the matter was left.

7 tons. - 1 ton dry - 114 gals.

14000
04

$60,00

560 # / 100.
2½

280
1120
---

8 5/3
2.55

2.55 . 14.00
8.20

N w as to the furnace, it seems to me that perhaps the A.P.CO. people are right when they send their flame down onto the top of the kelp instead of on the bottom. The chance of burning off th top and then this not interfering with the lwer layers seems to me to be rather feasible from what I have seen the last few days.

I hae not yet had the chance to try out any of the ash for the man but will as soon as we can get a reasonable amount of burning done in the furnace. I will run up and see how the burn is going over before closing up this letter.

Was just up and am back without much encouragement as to the results as the kelp is drying out but very slowly. There are evidences of the salts going up through the flue and being deposited outside on the surrounding earth. So far I have not run our output of smoke and etc. into a sump.

Tonight I shall run all night and see whether I can get any final results.

Mrs. Crandall and I join in sending our best regards and we are still hopeful that this series of experiments will finally end in something that we will all be able to handle. The furnace is the nest problem or else method of burning in this furnace.

Sincerely yours

W. C. Crandall

THE SCRIPPS INSTITUTION FOR BIOLOGICAL RESEARCH
OF THE
UNIVERSITY OF CALIFORNIA

LOCATED AT LA JOLLA
NEAR
SAN DIEGO, CALIFORNIA

LA JOLLA, CALIFORNIA,

Dec.9th 1914.

Dr.Guy R.Stuart,

Berkeley,Cal.

My dear Mr.Stuart:

Your letter of the 7th inst. just received. The Kelp Companies that are supposedly in existence at the rpesent time are:

American Potash Company		Longbeach.
Kelp Products Co.,	Brockman Bldg,	Los Angeles.
Pacif c Products Co.,		San Diego, in Loma Portal.
Columbia Chemical Co.,	L.A. INvest.Bldg.,	LosnAngeles,Cal.
Pac.Kelp Mulch Company	Story Bldg.,	Los Angeles,Cal.

Of these the A.P.Co., and Pacific Products Co. seem to be the most active.

I should be glad to see Mr.Greenwood and give him any information that I might be able concerning the cutting problem.

I shall be very glad to receive any publications that you may have issued. I'm always looking for new material as I hope that the kelp may yet become an important factor.

Yours truly,

W.C. Crandall

Dec.9th 1914.

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Berkeley,Cal.

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Kelp Products Co., Brookman Bldg, Los Angeles.

Pacific Products Co., San Diego, in Roma Portal.

Columbia Chemical Co., L.A. Invest.Bldg., LosAngeles,Cal.

Pac.Kelp Manufacturing Company Story Bldg., Los Angeles,Cal.

Of these the A.P.Co., and Pacific Products Co. seem to be the most active.

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Yours truly,

WESTERN UNION

Form 2289 J

RECEIVERS NO.	TIME FILED	CHECK

NIGHT LETTER

THEO. N. VAIL, PRESIDENT

SEND the following Night Letter, subject to the terms on back hereof, which are hereby agreed to

Dec. 12 191 4

To Dr Frank K Cameron
3207 - 19th N W
Washington D.C.

E.W. says not to resign ~~x~~ Time and oil run up cost too high x
Seventy hours for four Tons x 16 barrels oil x
Will continue experiments for furnace x
Letter with details follows x Will Try separation next week x Sorry x

W G Swindell

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2. In any event the Company shall not be liable for damages for any mistakes or delay in the transmission or delivery, or for the non-delivery, of this night letter, whether caused by the negligence of its servants or otherwise, beyond the sum of FIFTY DOLLARS, at which amount this night letter is hereby valued, unless a greater value is stated in writing hereon at the time the night letter is offered to the Company for transmission, and an additional sum paid or agreed to be paid based on such value equal to one-tenth of one per cent. thereof.

3. The Company is hereby made the agent of the sender, without liability, to forward this night letter over the lines of any other Company when necessary to reach its destination.

4. Night letters will be delivered free within one-half mile of the Company's office in towns of 5,000 population or less, and within one mile of such office in other cities or towns. Beyond these limits the Company does not undertake to make delivery, but will, without liability, at the sender's request, as his agent and at his expense, endeavor to contract for him for such delivery at a reasonable price.

5. No responsibility attaches to this Company concerning night letters until the same are accepted at one of its transmitting offices, and if a night letter is sent to such office by one of the Company's messengers, he acts for that purpose as the agent of the sender.

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7. *No employee of the Company is authorized to vary the foregoing.*

THE WESTERN UNION TELEGRAPH COMPANY
INCORPORATED
THEO. N. VAIL, PRESIDENT

CLASSES OF SERVICE

TELEGRAMS

A full-rate expedited service.

NIGHT TELEGRAMS

Accepted up to 2.00 A.M. at reduced rates to be sent during the night and delivered not earlier than the morning of the next ensuing business day.

DAY LETTERS

A deferred day service at rates lower than the standard telegram rates as follows: One and one-half times the standard night letter rate for the transmission of 50 words or less and one-fifth of the initial rate for each additional 10 words or less. Subordinate to the priority of transmission and delivery of regular telegrams. Must be written in plain English. Code language not permissible. Telephonic delivery permissible. Day Letters received subject to express understanding that the Company only undertakes delivery of the same on the day of their date subject to conditions that sufficient time remains for such transmission and delivery during regular office hours, subject to priority of the transmission of regular telegrams.

NIGHT LETTERS

Accepted up to midnight for delivery on the morning of the next ensuing business day, at rates still lower than standard night telegram rates, as follows: The standard day rate for 10 words shall be charged for the transmission of 50 words or less, and one-fifth of such standard day rate for 10 words shall be charged for each additional 10 words or less. Must be written in plain English. Code language not permissible. Mail delivery, postage prepaid, permissible.

Dec.13th 1914.

Dr.Frank K.Cameron,

Washington D.C.

My dear Dr.Cameron:

You are no doubt up in the air on account of the unexpected result of our lettle preliminary experiment. However there is no reason why there need be any permanent disappointment unless it is impossible for us to figure out some profitable manner of handling a furnace. I will give you in detail the results and then you can judge more fully as to the difficulty that we must overcome.

Gathered kelp on the 4th and 5th and got about 4 ton on hand. On the 7th started the furnace very satisfactorily at 8 A.M. and then began to put in the kelp. Put it all in and at first it began to dry and reduce in good shape but as the entire mass was placed in the furnace, then trouble began for the kelp matted down so that there was no getting a draft through it. We tried various pipes and other means to get a draft through but had no success. We burned with the fire coming through the front door until we seemed about to burn up all of our braces and so I shut down about 1 P.M. Then I dug a hole down at the back of the furnace and put in a piece of sheet iron and so finally got a flue opened up. Then I quit until Tuesday the 8that 8 A.M. Then I ran without stop until 10 P.M. and then shut down to see how the furnace would act with the flame shut off during the night. Had no luck as it did practically nothing all night. Stirred through and through the next morning and then started up at 7:45 and ran through without stop except to fix a belt for a few moments on the 10th and ran until I broke down at 7:45 on the 10th. Shut down until the 11th at 10:15 and then ran until 5:15. Shut down and let the kelp burn itself

until Sat.at 8:30 and then I fired up again and burnt until 2:30 P.M.

Classified our run will show like this

Monday	7	8-A.M.-	1 P.M.	Burnt Shut down until	(5hrs.)
Tues	8	9 A?M.	10 P.M.	" " " "	(11)
Wed	9	7:45	12 M.M.		16¼
Thursday		12:01 A.M.-	7:45 P.M.	" " " "	19¾
Friday		10:15	5:15 P.M.	" " " "	7
Sat.		8:30	2;30 P.M.		6

Total hours run 65 hrs.with the oil burning.

Total hours under heat fromthe war furnace at least 144 hrs.

Oil consumed 16 bbls.

Results:

Ist 12 hrs there was a considerable run off of water that I caught and have saved. This came off while the furnace was heating up and whi le the heat was not great.

After the kelp was placed where it was under greater heat,then the water seased to run off. However I could nt get the mass to char or burn except by constant attention. In fact there was a wet mass to deal with until the last ot the mass was burnt.

As a result of the high temperatures that I used I fused several of t the grate bars so that I will have to replace them. I think that volatilized most of the salts in the high temperatures and that I have only a small percentage of the salts left that we want for the work. That I was unable to find out today as I had to do some Station work that I have been neglecting for a good while.

E.W. has been a constant attendent at the work and when we were at th

work on last Saturday, he said that we were not on the right track as to th furnace also that he could see that his scheme was not a feasible one Then he said that he was glad that there was not a matter of 50 furnaces that was involved instead of one furnace. As a result of the necessity of further experimenting as to a furnace etc. however, he said that he thot th t it would be unwise for you to resign until something more favorable tur turned up. However he did not throw up the job in any way other than to sya thay we wouod g right ahead and try out different methods of feeding this furnace and see if we could get the better of the kelp in the burning. Also that we would put out a lot of it into a compost bed and see what we co do with it as in that way. So it seems to me that it is up to us to do a l t more thinking and figuring as to the best methods etc. as we will have to ar at something definite for a fihal attempt. E.W. suggested that we would probably have at least a years work to find out the method for burning etc. However we can get it finally I am sure. I am trying to scheme out some kind of a vibrator that will keep the kelp st rred up and thus give a continuous heat through the mass at all times. Now the heat is lost. The rotary drier with a burning kiln at the end might be the bes method of getting at the situation. In fact I don't see any other easy way of getting the material thoroughly mixed up and moving.

I am troubled and sorry that the f rnace did not do as was expected but there have been some good excellent negative results that are worth the ~~fnal~~ effort. If tis thing won't work, then we must get another way that will. Cheer up this will turn out well for the industry and every one concerned before we will give up the investigation .

ith best wishes to you and Mrs. Cameron?

THE SCRIPPS INSTITUTION FOR BIOLOGICAL RESEARCH
OF THE
UNIVERSITY OF CALIFORNIA

LOCATED AT LA JOLLA
NEAR
SAN DIEGO, CALIFORNIA

LA JOLLA, CALIFORNIA,

Dec.26th 1914.

Dr.Frank K.Cameron,

Washington D.C.

My dear Dr.Cameron,

Tuesday,Wednesday and hursday I spent in Los Angeles looking into the kelp situation. At present there is the following condition:

Tuesday I saw Mr.Bell 1134-5 Investment Bldg. He was not communicative but made the statement that he expected that his company wouod be at work at the proposition of making experiments as to the advanced method of harvesting within a month. At present thay have no site and are not going to look for the same until they have experimented and found ot whether they can harvest and dry within a commercial figure. Mr.Bell told Mr; Greenwood who was down from Berkeley for State that they were secretly putting up a boat such as was described to you last Fall. However he did not admit any such thing to me and I don't think tha he is doing anything at present and from past experience believe that he is only promoting a company so as toget some promotion money out of it and then let the company look out for itself. In other words this is another wildcat company. He stated that they were not doing anything to talk about at the present time so I judge from that.

Kelp Product Company 521 Brockman Bldg.,

Telephoned to Mr.Metz and had a short talk with him on Tuesday over the telephone. I made and arrangement to meet him at his office on Wed.in the P.M. but he nor any of the firm were there and had not been since before noon if a note on the door meant anything. As I had made the engagement it looked as the firm was waiting after to talk with me. In the Am.Pot.Co. so as to try and get however I found out through Greenwood

ahold of the Am.Pot.Plant. and that they were doing nothing at the present time. Metz said over the telephone that they were not doing anything at present and so that will account for their attitude in being out of sight after they had made their engagement for Wednesday. I did not have the time to go further into their case.

Consolidated Potash Co. 220 Story Bldg.,

This is a new company that G.W.Berstein and the Englishman Armstrong are starting. They have their offices across the little corridor from where we met them when you were here. The are not doing anything and will not I suspect for lack of cash. Evidently Armstrong was unable to hoodwink Perkins and so has gone out for himself and taken Bernstein with him. There is nothing to report about them other than that they have their name on a door. This will be a woldcat wcheme or I miss my guess .

Pac.Kelp Mulch Co. 220 Story Bldg.,

On the other side from the Consldtd Pot.Co., is the old organization. This organization exists but is not active at present. I could not find that th intended to undertake anything actively for the time being at least. It would look as if Perkins had decided that the proposition was not good enough for him.

Am.Pot.Co. Longbeach Cal. Offices have been moved from the Marsh-Strong Bldg. L.A. I had a long talk with Mr.Gleason and he told me that he was in hopes of making a loan from $125 000 - 150 000 on the land as security and then going a head as this would then put them in so that they could pay for the land and then put up a couple more units for their plant. If he was unable to do this that he(confidentially) would give up the game as he would not risk all that he owned in this project. Of course the company stands in the position that it did namely of owing for its land and some other $20 000 debts. so they are in the hole now something around $ 100 000 besides the fact that they have

spent all the money that they collectedfrom their stockholders.

Wednesday morning I went down and saw their plant and I was surprised at the advance that theyr had made from what we saw when we were down there last. They have taken and built their cutter that is similar to the one that the Pac.Kelp used except that they have not put on any vertcal cutting bars but instead they are using a sharp edge that run up along the draper for the same purpose. Their barge holds about 30 tons and takes them about an hour to cut this and they figure cost them 13.5¢ per ton at present to put in their wharf. However I took up tje matter of depretiation etc. and Mr.Oppenheimer and I came to the understanding that they were really paying about twice that amount. They are using five men at a cost of $15.00 and then boat expense of about $5. Of course the above figure does not represent their estimate as they can only run about one load a day at the present time and the figure was o a suppositional run of 150 tons. However they had forgotten that this meant more men and a few o other incidental facts. Their conditions would warrant an estimate for at least no more tha 30¢ per ton for the kelp landed on thier wharf.

Theri kelp now goes in through a cutter and thence by a belt carrier to the dr drier. The cutter is simply a knife edge that raises once a second and then two rollrs behind roll the kelp in and it is cut in abo t 15 inch lengths. Each cut averages about 5#. This would give a cu ting rate of some 18 000# per hour or 9 tons. This I did not see work but had to take their figures for it. Then after the kelp is cut it is dreid and this is done in a large rotary drier Amer.type. This drier is about 40' long and 5' in diameter. It is supplied with heat from an pil fire. This fire is from three nozzles and gives a heat of 1200degrees. The estimate for this drier is that it will handle about 150 tons per day. From their estimates on oil consumption,it will take about 1 bbl. of ol to each three t tons of wet kelp. They are paying 71¢ per barrel at the present time. It take

about three men to run the drier cutter and etc. per shift. The drying would t then cost $27.00 labor 35.50 so that the cost of drying would run over 40¢ per ton. After the kelp is dried the smoke etc. is carried off by means of a chimney and the dried kelp empties into a chamber from which it is carried by means of a blow fan clear across the old storage room until it come into a room above the furnaces of they have two at the present. This dried kelp is then dropped into the furnaces where it burns with the aid of very little oil. The rest of the work I have described in detail before. The intention to increase the size of the plant by adding new driers, furnaces and lixiviating rooms etc. in batteries is feasible and a natural developpement. The work that is done now is in good shape and the arrangement is good. They are using the old plant but with it entirely rearranged. It all looks businesslike now and if they ena make the loan that they want, their future looks good as a producing company. They are the only ones that are really doing business at the present time and they are not selling any potash. They are in a position to do some work but are not actively engeged just at present. If they don't make the loan they will have to give up just as they are at apoint when they might do something. They have not done right by their stockholders but they might do something now if they can hold on.

They find 6.6 tons of wet kelp make 1 ton of dry.

Best wishes for the Holidays.

Sincerely yours

W. C. Crandall

Dec.26th 1914.

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Washington D.C.

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Dr.Frank K.Cameron,

Washington D.C.

My dear Dr.Cameron:

I have just returned from Los Angeles where I made a roundup of the kelp situation and have sent in an official account to the Bureau that you have probably received by this time.

As regards the experiments on kelp,I will have everything in readiness so that you can go to work on the 6th with the furnace. You will have either Ralph or some other good man to help out on the work. There will be oil, kelp and the furnace to start on. I am more than interested because it has been clearly demonstrated that the method that you gave is utterly out of the line of inexperienced hands. The matter for instance of the actual amount of water to add is a big bugbear. I have all sorts of real questions to ask but as you will be here so soon there is no need to bither you at this time.

With the best wishes for the Season,

I am sincerely yours,

W C Crandall